



10:00

ĐIỀU TRỊ ĐÁI THÁO ĐƯỜNG TYP 2 Ở NGƯỜI CAO TUỔI: NHỮNG ĐIỀU CẦN LƯU Ý

*ThS.BS Đoàn Thị Len
Khoa Điều trị ban ngày - Bệnh viện Nội tiết Trung ương*



NỘI DUNG CHÍNH

1

- Dịch tễ và thách thức trong điều trị ĐTĐ typ 2 ở người cao tuổi

2

- Thang điểm đánh giá suy yếu và các mức độ suy yếu lâm sàng

3

- Cập nhật một số khuyến cáo về mục tiêu điều trị ở nhóm đối tượng này

4

- Kết luận



Tỷ lệ mắc đái tháo đường tăng theo tuổi

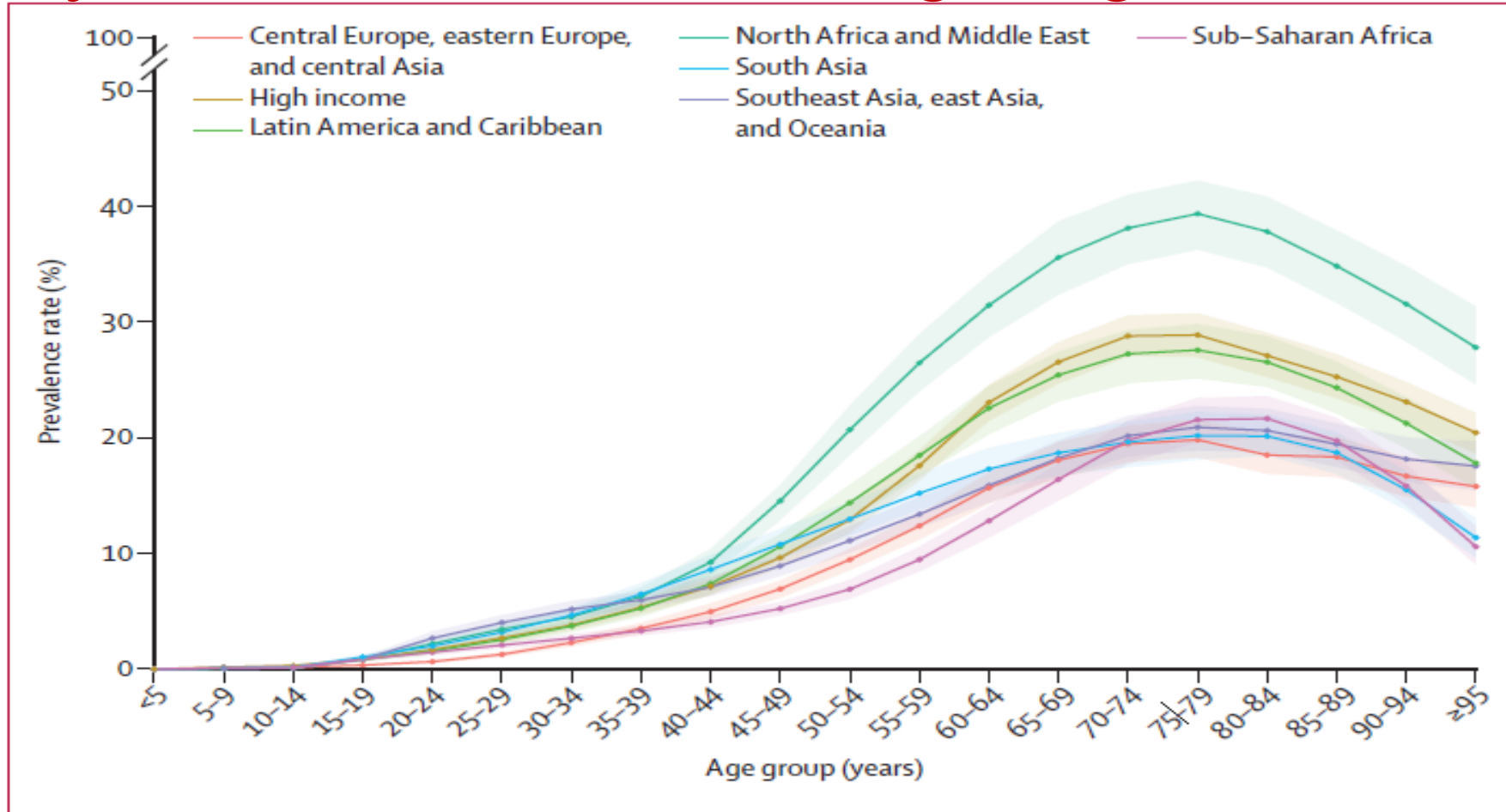


Figure 2: Prevalence of total diabetes by age and GBD super-region in 2021

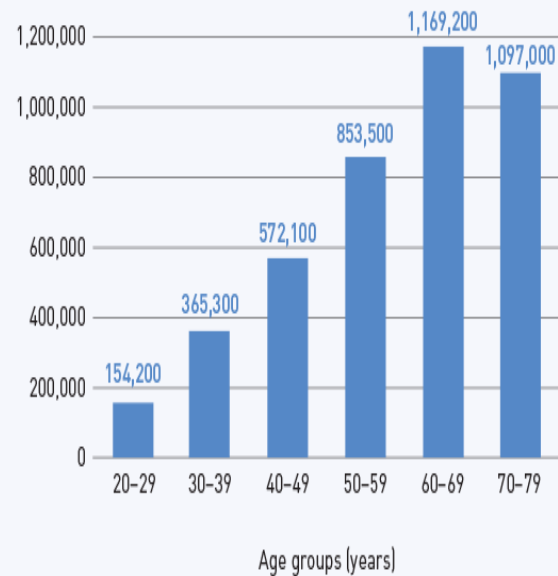
The shaded areas represent 95% uncertainty intervals. GBD=Global Burden of Diseases, Injuries, and Risk Factors Study.



Đái tháo đường ở người cao tuổi

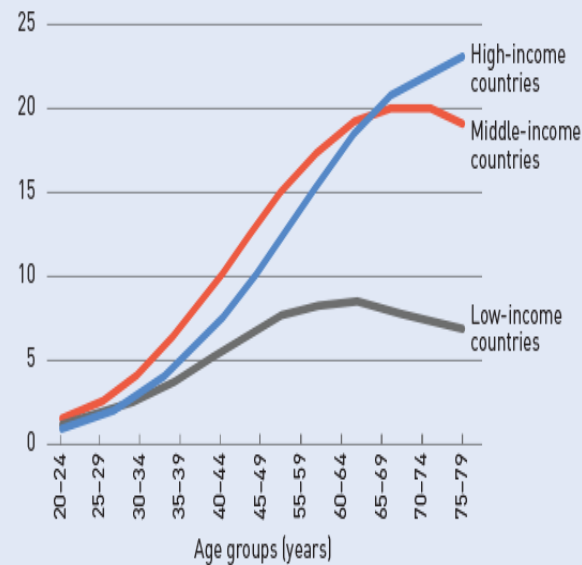
Diabetes affects people of all ages, typically showing higher prevalence with increasing age up to 60-69 years.

Deaths attributable to diabetes by age (20-79 years), 2019



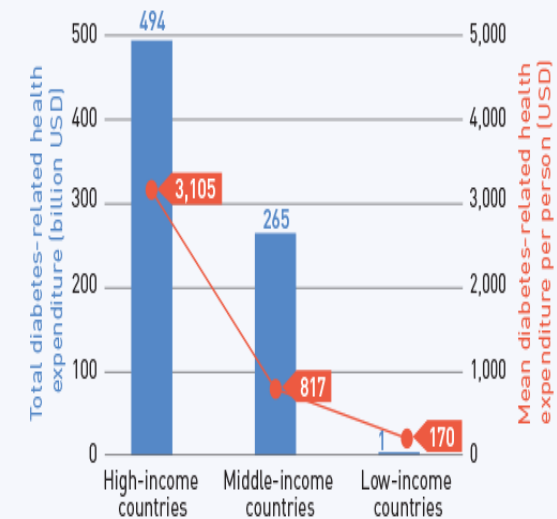
1 in 5 people older than 65 years have diabetes.

Prevalence (%) estimates of diabetes by age and income group, 2019



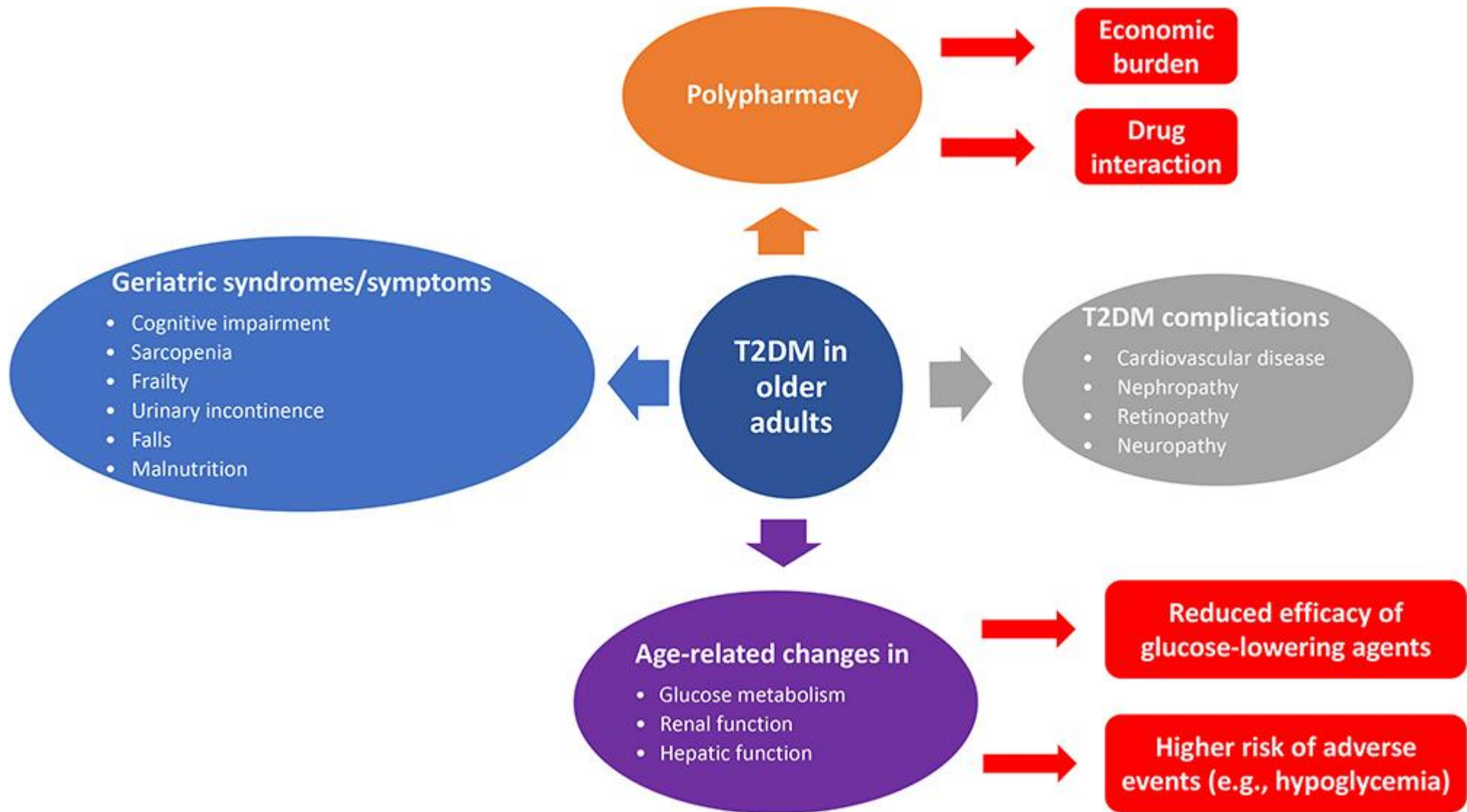
87% of diabetes-related deaths occur in low- and middle-income countries. But, only 35% of diabetes-related health expenditure is spent there.

Total diabetes-related and mean health expenditure per person and per income group, 2019



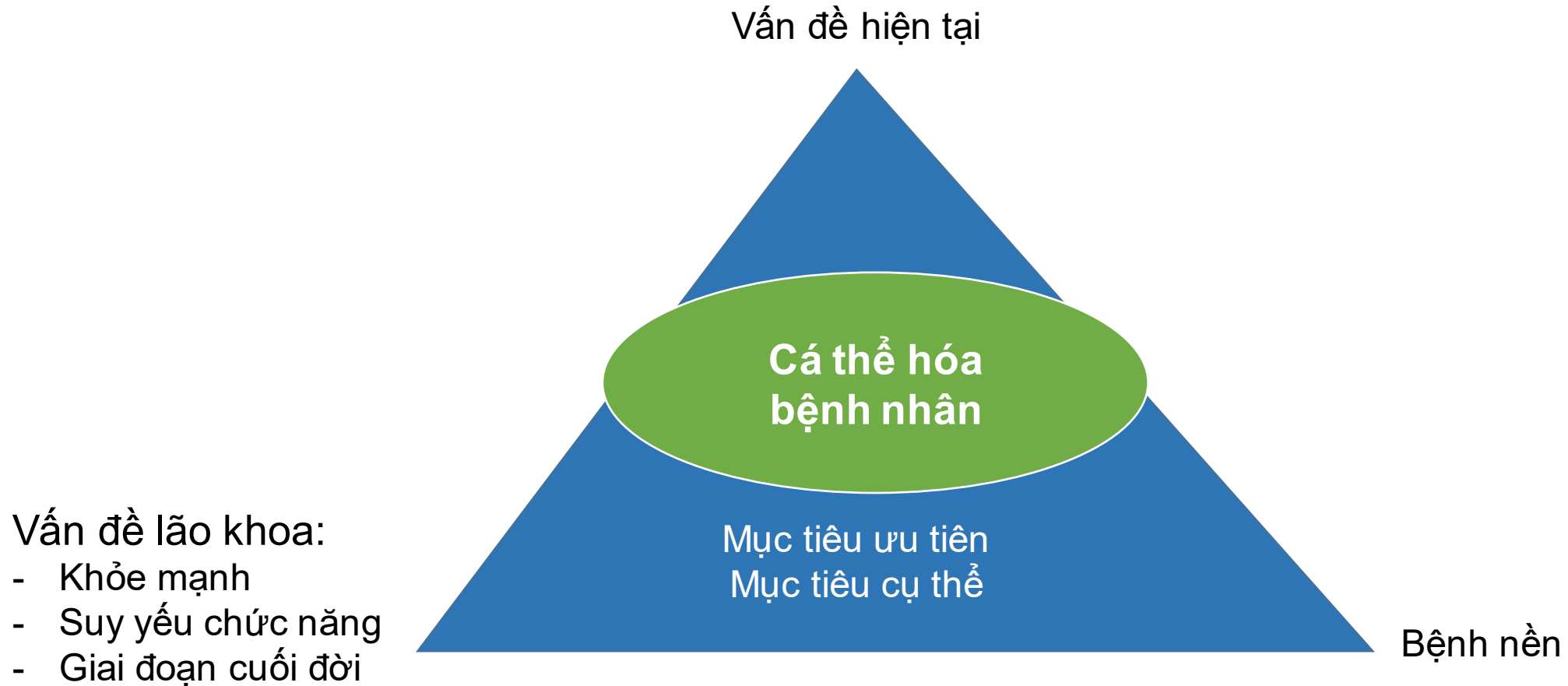


Thách thức trong điều trị đái tháo đường typ 2 ở người cao tuổi

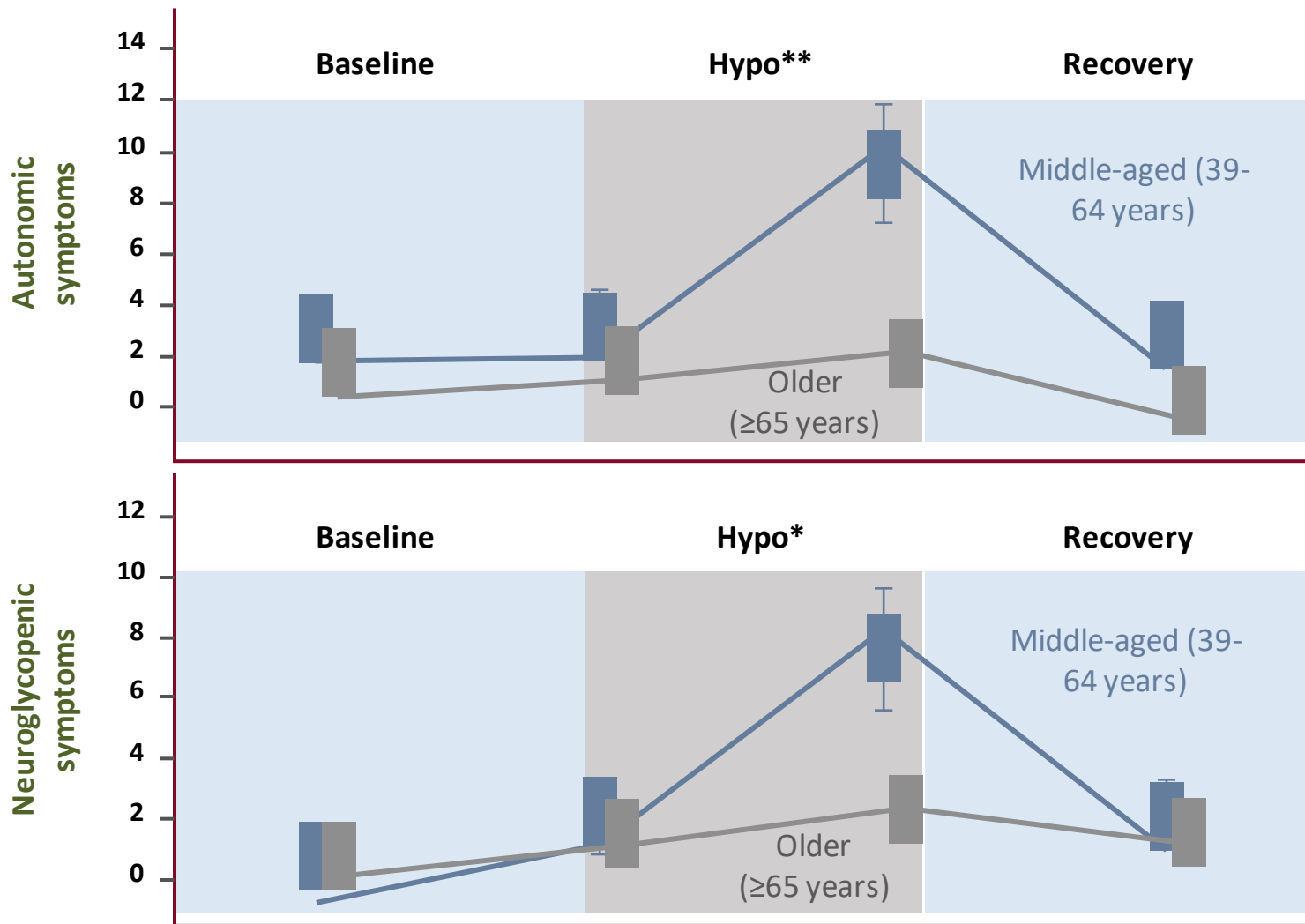




Mô hình tiếp cận bệnh lý người cao tuổi



BN ĐTĐ cao tuổi khó nhận thức được các triệu chứng hạ đường huyết



* $p < 0.05$, ** $p < 0.01$

Bremer JP et al. *Diabetes Care* 2009;32(8):1513-17.





Hạ đường máu làm tăng nguy cơ tử vong ở BN ĐTĐ typ 2

Table 2 Risk of mortality in patients with type 2 diabetes in relation to hypoglycemia during admission

From: [Hypoglycemia in patients with type 2 diabetes mellitus during hospitalization: associated factors and prognostic value](#)

Level of hypoglycemia	No	Inpatient mortality (%)	Crude OR (95% CI)	Charlson Index- adjusted OR ^a (95% CI)	Multi-adjusted OR ^b (95% CI)
No hypoglycemia	170	4.7	1 (reference)	1 (reference)	1 (reference)
Any hypoglycemia	154	14.3	3.37 (1.45–7.82)**	2.90 (1.22–6.88)*	3.66 (1.33–10.0)*
Mild hypoglycemia (blood glucose 56–70 mg/dL)	63	4.8	1.01 (0.26–3.94)	0.89 (0.22–3.53)	1.30 (0.30–5.57)
Severe hypoglycemia (blood glucose ≤ 55 mg/dL)	91	20.9	5.34 (2.23–12.7)***	4.59 (1.87–11.2)***	6.03 (2.09–17.4)***

*P < 0.05; **P < 0.01; ***P < 0.001. OR, odds ratio

^aAdjusted for Charlson Comorbidity Index [24]. Complete data available for 324 individuals

^bAdjusted for age, sex, body mass index, glomerular filtration rate, and need for intensive care unit admission. Complete data were available for 279 individuals



Nguyên tắc điều trị Đái tháo đường ở người cao tuổi

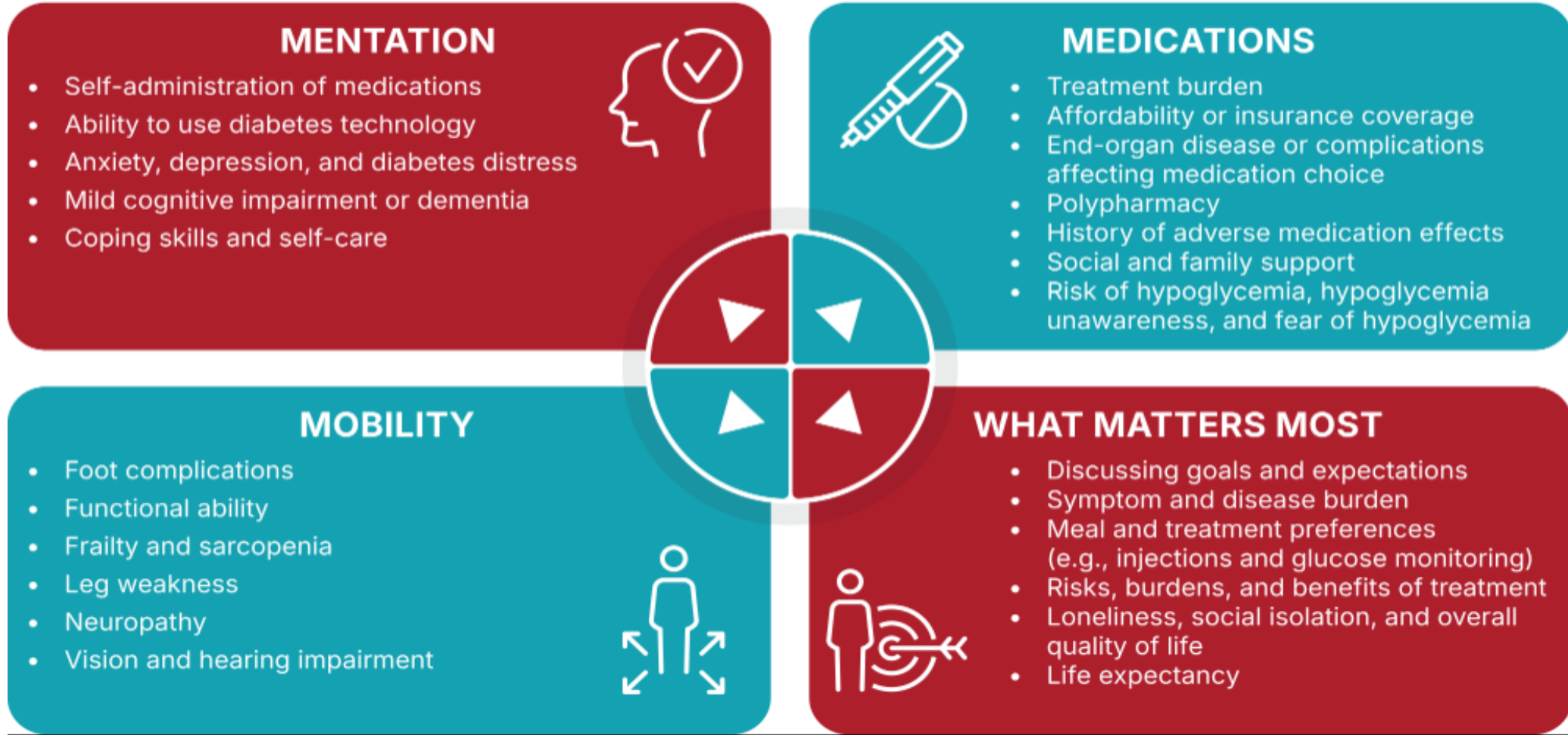
Khuyến cáo ADA 2025

- 13.14: **Select medications with low risk of hypoglycemia** in older adults with type 2 diabetes, specifically for those with hypoglycemia risk factors. **B**
- 13.15 **Overtreatment** of diabetes is common in older adults and should **be avoided**. **B**
- 13.16a Deintensify hypoglycemia-causing medications (e.g., **insulin, sulfonylureas, or meglitinides**) or switch to a medication class with low hypoglycemia risk for individuals who are at high risk for hypoglycemia, using individualized glycemic goals. **B**
- 13.16b In older adults with diabetes, deintensify diabetes medications for individuals for whom the harms and/or burdens of treatment may be greater than the benefits, within individualized glycemic goals. **E**
- 13.16c **Simplify complex treatment plans** (especially insulin) to reduce the risk of hypoglycemia and polypharmacy and decrease the treatment burden if it can be achieved within the individualized glycemic goals. **B**
- 13.16d In older adults with type 2 diabetes and established or high risk of atherosclerotic cardiovascular disease, heart failure, and/or chronic kidney disease, the treatment plan should include agents that **reduce cardiovascular and kidney disease risk, irrespective of glycemia**. **A**



Quản lý đái tháo đường typ 2 ở người cao tuổi theo mô hình 4Ms theo ADA 2025

Using the 4Ms Framework of Age-Friendly Health Systems to Address Person-Specific Issues That Can Affect Diabetes Management





Thang điểm đánh giá suy yếu

Modified Katz Activities of Daily Living (ADL) Scale

Activity	Item	Score
Eating	Gets food from plate into mouth without help Food may be prepared by another person Eats without assistance	1
	Needs partial or complete assistance in eating or is fed intravenously	0
Dressing	Gets clothes from closets and drawers and puts on clothes and outer garments complete with fasteners. May have help tying shoes.	1
	Needs help with dressing or needs to be completely dressed	0
Bathing (sponge bath, tub bath, shower)	Bathes self completely or needs help in bathing only a single part of the body such as the back, genital area, or disabled extremity	1
	Needs assistance in bathing more than one part of the body, getting in and out of the tub or shower, or needs total assistance	0
*Transferring	Moves in and out of bed or chair unassisted (mechanical transfer aids are acceptable)	1
	Needs help in moving from bed to chair or requires a complete transfer	0
Toileting	Goes to toilet, gets on and off, arranges clothes, and cleans genital area without help	1
	Needs help transferring to the toilet, cleaning self or uses bedpan or commode	0
Continence	Controls bladder and bowel completely (without occasional accidents)	1
	Is partially or totally incontinent of bowel or bladder	0

* Transferring is the only measure of mobility in the Katz ADL scale.

A score of 6 indicates the patient is independent, 4 indicates the patient has moderate impairment, and 0 indicates the patient is very dependent.



PHÂN LOẠI MỨC ĐỘ SUY YẾU LÂM SÀNG CFS

Clinical Frailty Scale



1. Very fit – People who are robust, active, energetic and motivated. These people commonly exercise regularly. They are among the fittest for their age.



2. Well – People who have no active disease symptoms but are less fit than category 1. Often, they exercise or are very active occasionally, e.g. seasonally.



3. Managing well – People whose medical problems are well controlled, but are not regularly active beyond routine walking.



4. Vulnerable – While not dependent on others for daily help, often symptoms limit activities. A common complaint is being “slowed up”; and/or being tired during the day.



5. Mildly frail – These people often have more evident slowing, and need help in high order IADLs (finances, transportation, heavy housework, medications). Typically, mild frailty progressively impairs shopping and walking outside alone, meal preparation and housework.



6. Moderately frail – People need help with all outside activities and with keeping house. Inside, they often have problems with stairs and need help with bathing and might need minimal assistance (cuing, standby) with dressing.



7. Severely frail – Completely dependent for personal care, from whatever cause (physical or cognitive). Even so, they seem stable and not at high risk of dying (within ~ 6 months).



8. Very severely frail – Completely dependent, approaching the end of life. Typically, they could not recover even from a minor illness.



9. Terminally ill – Approaching the end of life. This category applies to people with a life expectancy <6 months, who are not otherwise evidently frail.

Scoring frailty in people with dementia

The degree of frailty corresponds to the degree of dementia. Common **symptoms in mild dementia** include forgetting the details of a recent event, though still remembering the event itself, repeating the same question/story and social withdrawal.

In **moderate dementia**, recent memory is very impaired, even though they seemingly can remember their past life events well. They can do personal care with prompting.

In **severe dementia**, they cannot do personal care without help.

TIẾP CẬN ĐIỀU TRỊ TOÀN DIỆN CHO BN ĐÁI THÁO ĐƯỜNG

Thuốc hạ đường huyết bảo vệ tim mạch – thận

Kiểm soát đường huyết



Kiểm soát yếu tố nguy cơ tim mạch

Kiểm soát cân nặng



Khuyến cáo ADA 2025 về mục tiêu điều trị ĐTĐ typ 2 ở người cao tuổi

Table 13.1—Framework for considering treatment goals for glycemia, blood pressure, and dyslipidemia in older adults with diabetes

Characteristics and health status of person with diabetes	Rationale	Reasonable A1C goal*	Reasonable CGM goals	Fasting or preprandial glucose	Bedtime glucose	Blood pressure	Lipids
Healthy (few coexisting chronic illnesses, intact cognitive and functional status)	Longer remaining life expectancy	<7.0–7.5% (<53–58 mmol/mol)	TIR 70–180 mg/dL (3.9–10.0 mmol) of ~70%, and TBR <70 mg/dL (3.9 mmol/L) of <4%	80–130 mg/dL (4.4–7.2 mmol/L)	80–180 mg/dL (4.4–10.0 mmol/L)	<130/80 mmHg	Statin, unless contraindicated or not tolerated
Complex/intermediate (multiple coexisting chronic illnesses† or two or more ADL impairments or mild to moderate cognitive impairment)	Variable life expectancy. Individualize goals, considering: <ul style="list-style-type: none"> • Severity of comorbidities • Cognitive and functional limitations • Frailty • Risk-to-benefit ratio of diabetes medications • Individual preference 	<8.0% (<64 mmol/mol)	TIR 70–180 mg/dL (3.9–10.0 mmol) of ~50% and TBR <70 mg/dL (3.9 mmol/L) of <1%	90–150 mg/dL (5.0–8.3 mmol/L)	100–180 mg/dL (5.6–10.0 mmol/L)	<130/80 mmHg	Statin, unless contraindicated or not tolerated
Very complex/poor health (LTC or end-stage chronic illnesses‡ or moderate to severe cognitive impairment or two or more ADL impairments)	Limited remaining life expectancy makes benefit minimal	Avoid reliance on A1C; glucose management decisions should be based on avoiding hypoglycemia and symptomatic hyperglycemia		100–180 mg/dL (5.6–10.0 mmol/L)	110–200 mg/dL (6.1–11.1 mmol/L)	<140/90 mmHg	Consider likelihood of benefit with statin

This table represents a consensus framework for considering treatment goals for glycemia, blood pressure, and dyslipidemia in older adults with diabetes. The characteristic categories are general concepts. Not every individual will clearly fall into a particular category. Consideration of individual and care partner preferences, care partner engagement, abilities, and resources is an important aspect of treatment individualization. Additionally, an individual's health status and preferences may change over time. ADL, activities of daily living; CGM, continuous glucose monitoring; LTC, long-term care; TBR, time below range; TIR, time in range. *A lower A1C goal may be set for an individual if achievable without recurrent or severe hypoglycemia or undue treatment burden. †Coexisting chronic illnesses are conditions serious enough to require medications or lifestyle management and may include arthritis, cancer, heart failure, depression, emphysema, falls, hypertension, incontinence, stage 3 or worse chronic kidney disease, myocardial infarction, and stroke. "Multiple" means at least three, but many individuals may have five or more (77). ‡The presence of a single end-stage chronic illness, such as stage 3–4 heart failure or oxygen-dependent lung disease, chronic kidney disease requiring dialysis, or uncontrolled metastatic cancer, may cause significant symptoms or impairment of functional status and significantly reduce life expectancy. Adapted from Kirkman et al. (3).



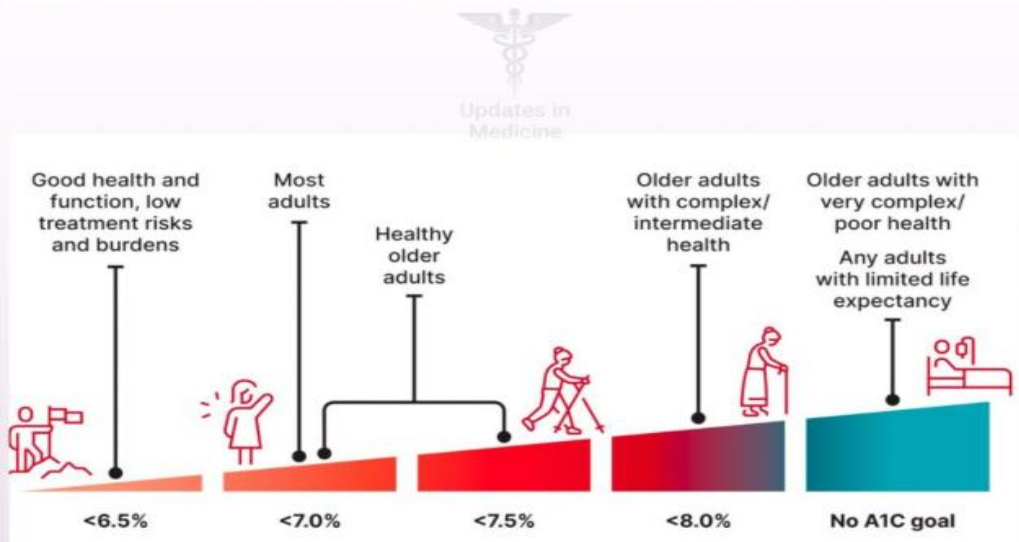
Mục tiêu đường huyết trên bệnh nhân người cao tuổi

Q 2: What are the glycemic treatment goals for persons with diabetes mellitus?	
2.1 Outpatient Glucose Targets for Nonpregnant Adults	
R 2.1.1	An A1C level of $\leq 6.5\%$ is recommended for most nonpregnant adults, if it can be achieved safely. To achieve this target A1C level, FPG may need to be <110 mg/dL, and the 2-h postprandial glucose (PPG) may need to be <140 mg/dL (Table 6). Glucose targets should be individualized with consideration for life expectancy, disease duration, presence or absence of micro- and macrovascular complications, cardiovascular disease (CVD) risk factors, comorbid conditions, and risk for hypoglycemia, as well as a person's cognitive and psychological status. Grade A; BEL 1
R 2.1.2	Adopt less stringent glycemic goals (A1C 7% to 8%) in persons with a history of severe hypoglycemia, hypoglycemia unawareness, limited life expectancy, advanced renal disease, extensive comorbid conditions, or long-standing DM in which the A1C goal has been difficult to attain despite intensive efforts, so long as the person remains free of hyperglycemia-associated symptoms. Grade A; BEL 1



ADA Standards of Care 2025

HbA1C Targets in Diabetes

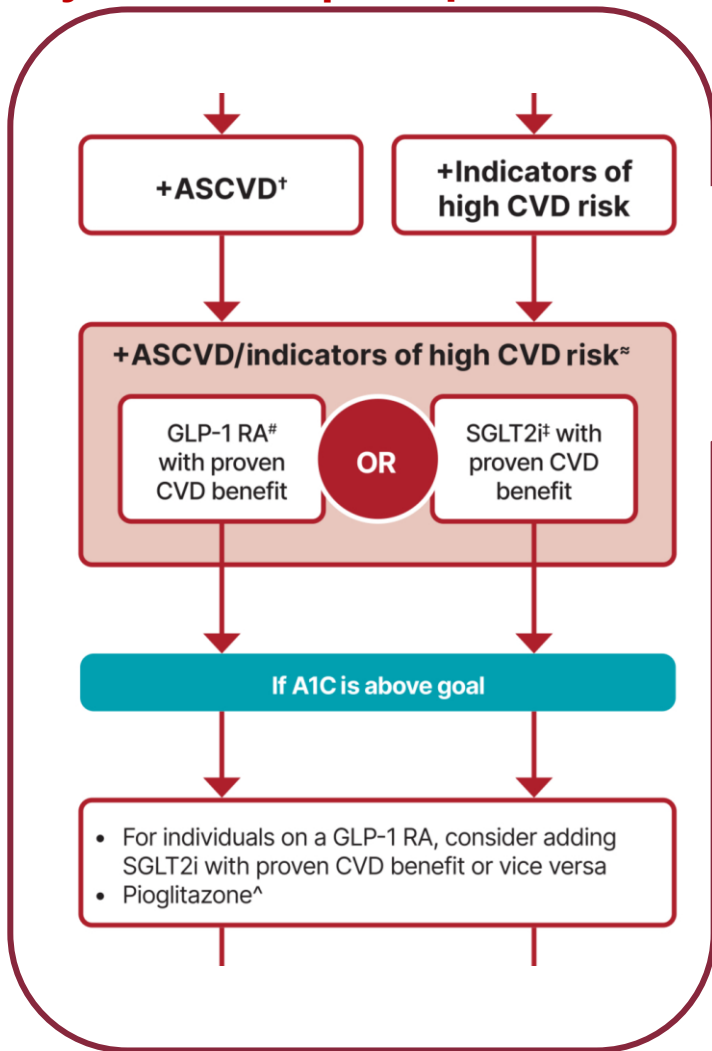


Standards of Care in Diabetes - 2025 Diabetes Care 2025



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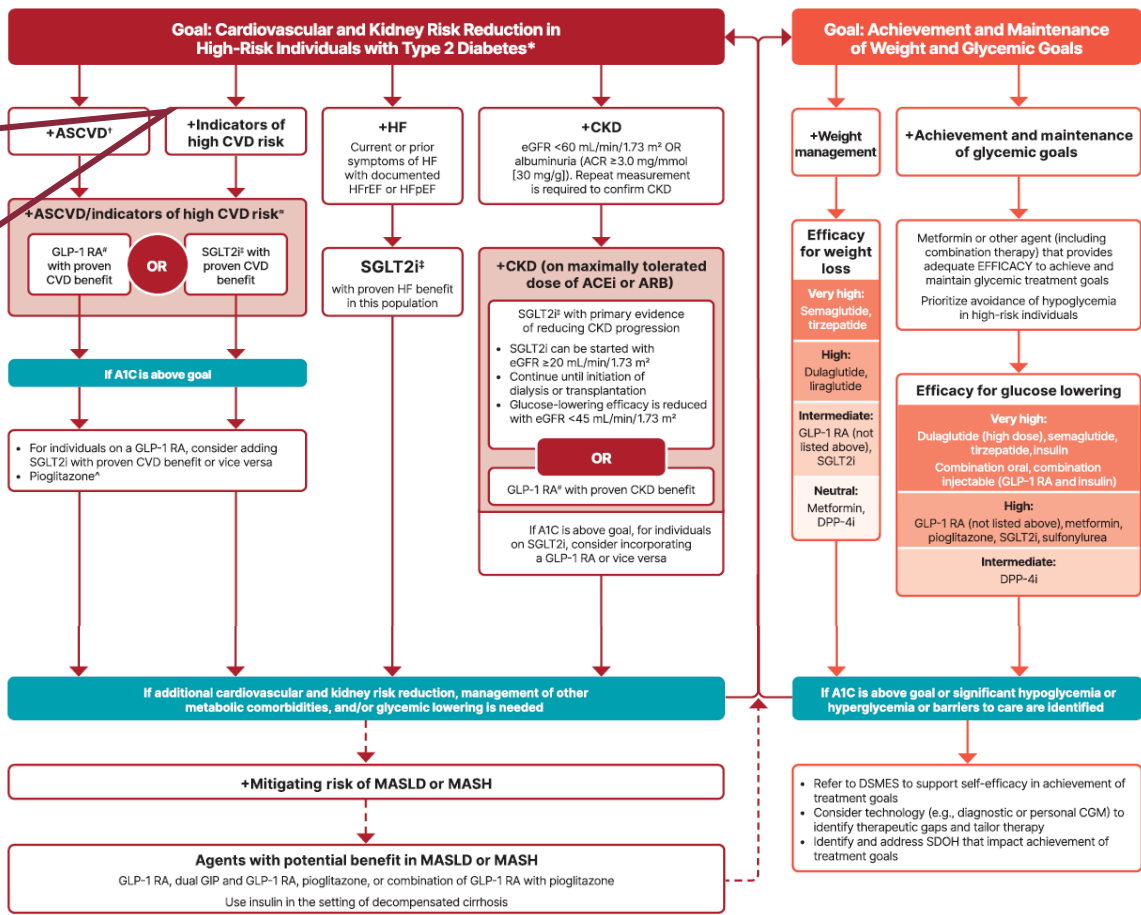
Song hành mục tiêu kiểm soát đường huyết & bảo vệ cơ quan đích



Use of Glucose-Lowering Medications in the Management of Type 2 Diabetes

HEALTHY LIFESTYLE BEHAVIORS; DIABETES SELF-MANAGEMENT EDUCATION AND SUPPORT; SOCIAL DETERMINANTS OF HEALTH

To avoid therapeutic inertia, reassess and modify treatment regularly (3-6 months)



* In people with HF, CKD, established CVD, or multiple risk factors for CVD, the decision to use a GLP-1 RA or SGLT2i with proven benefit should be made irrespective of background use of metformin or A1C.

† ASCVD: Defined differently across CVOTs but all included individuals with established CVD (e.g., MI, stroke, and arterial revascularization procedure) and variably included conditions such as transient ischemic attack, unstable angina, amputation, and symptomatic or asymptomatic coronary artery disease. Indicators of high risk: While definitions vary, most comprise ≥ 55 years of age with two or more additional risk factors (including obesity, hypertension, smoking, dyslipidemia, or albuminuria).

~ A strong recommendation is warranted for people with CVD and a weaker recommendation for those with indicators of high-risk CVD. Moreover, a higher absolute risk reduction and thus lower numbers needed to treat are seen at higher levels of baseline risk and should be factored into the shared decision-making process. See text for details.

For GLP-1 RAs, CVOTs demonstrate their efficacy in reducing composite MACE, CV death, all-cause mortality, MI, stroke, and kidney end points in individuals with T2D with established or high risk of CVD. One kidney outcome trial demonstrated benefit in reducing persistent eGFR reduction and CV death for a GLP-1 RA in individuals with CKD and T2D.

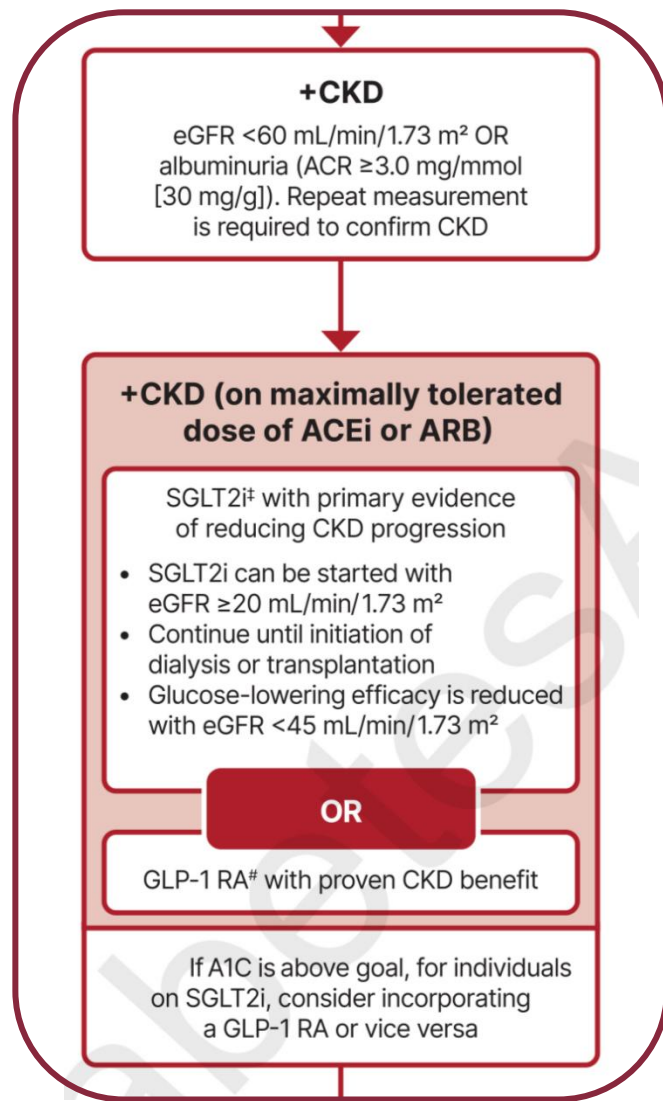
‡ For SGLT2is, CV and kidney outcomes trials demonstrate their efficacy in reducing the risks of composite MACE, CV death, all-cause mortality, MI, HFrEF, and kidney outcomes in individuals with T2D and established or high risk of CVD.

^ Low-dose pioglitazone may be better tolerated and similarly effective as higher doses.

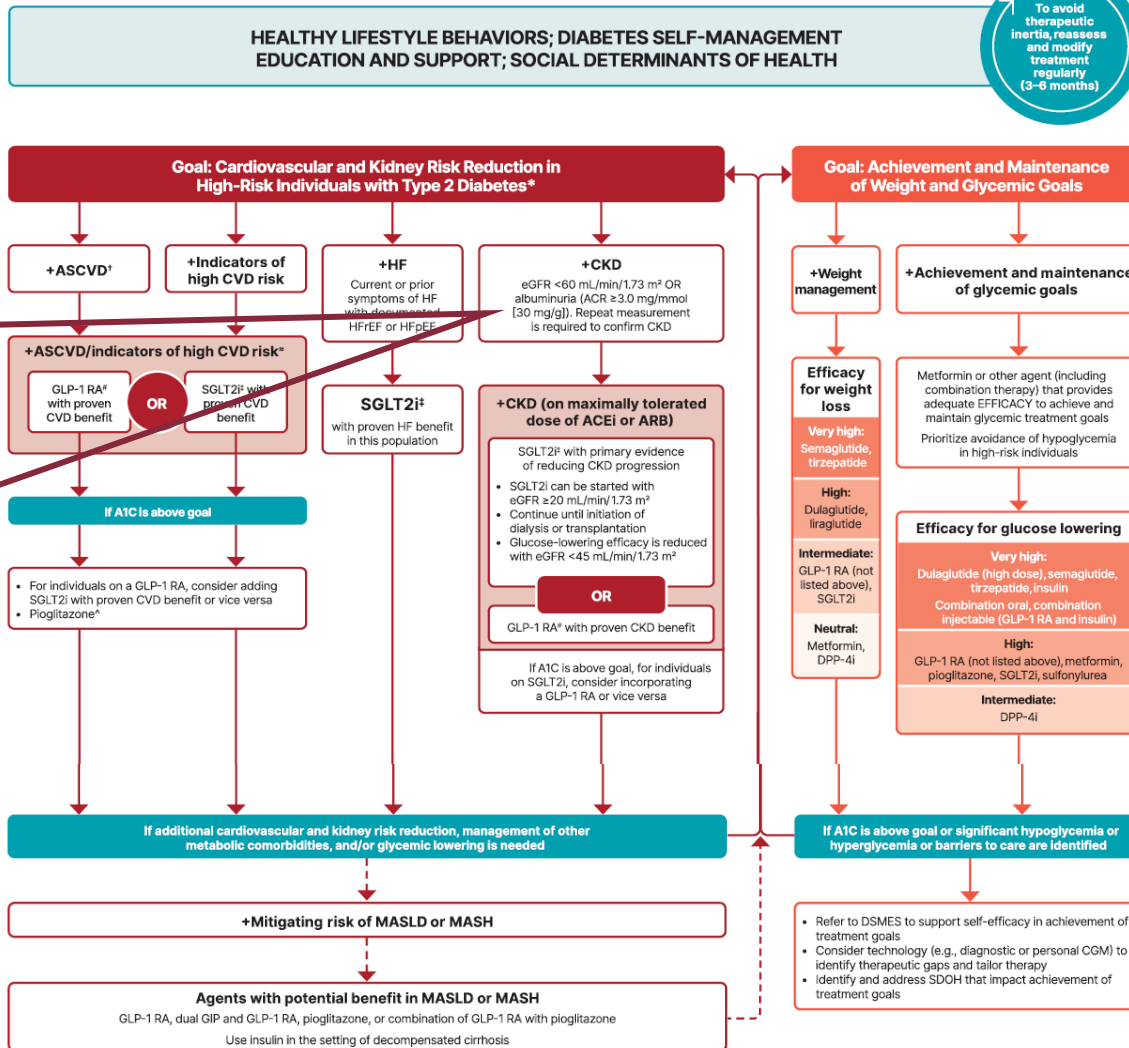


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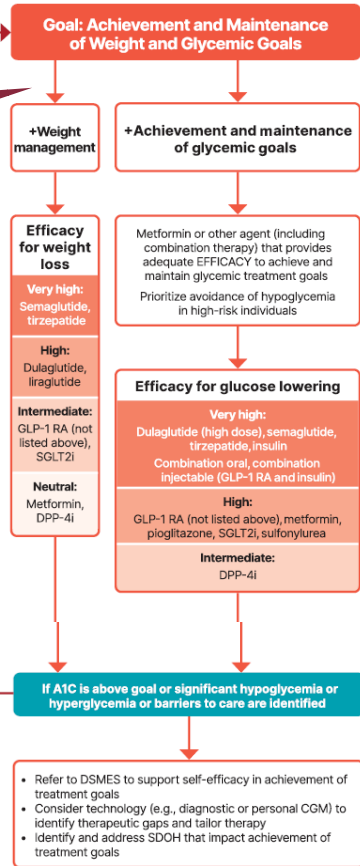
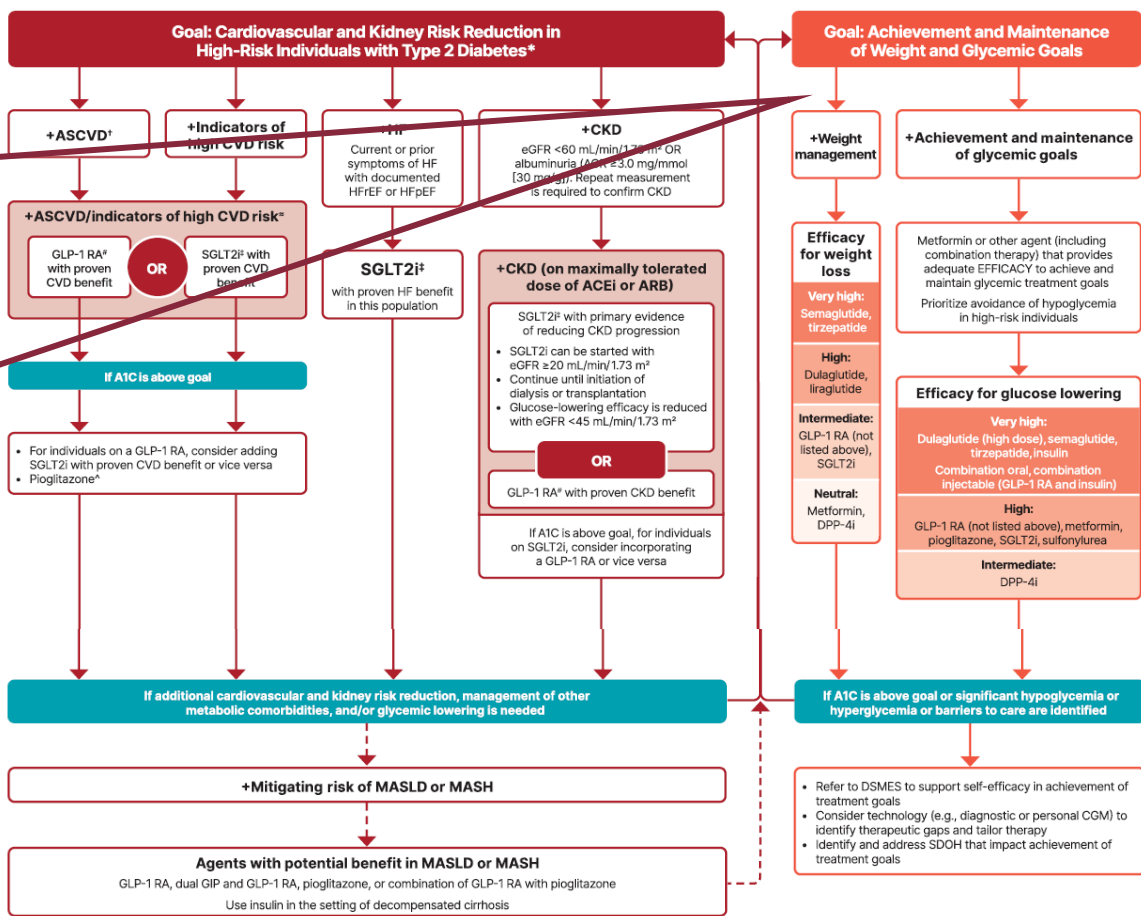
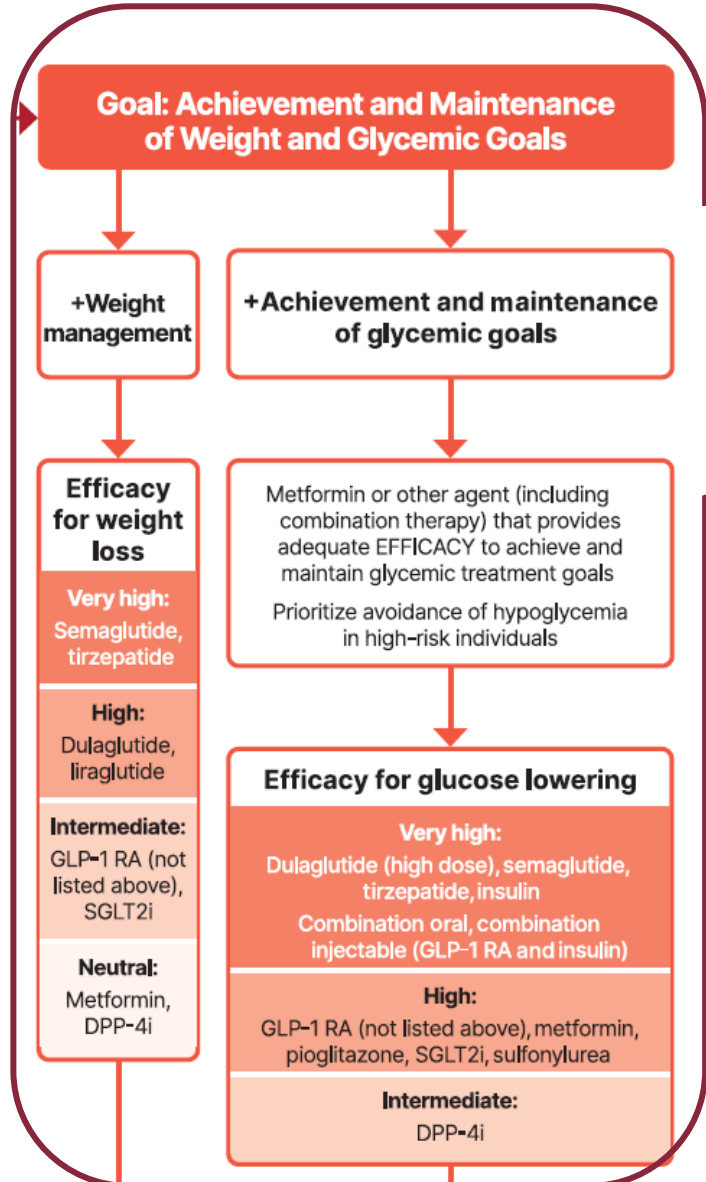
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KHUYẾN CÁO AACE 2023

GLUCOSE-CENTRIC ALGORITHM FOR GLYCEMIC CONTROL

LIFESTYLE INTERVENTION

Start or continue metformin if appropriate¹

INDIVIDUALIZE GLYCEMIC TARGET

A1C \leq 6.5% for most persons or 7%-8% if high risk for adverse consequences from hypoglycemia and/or limited life expectancy

	Overweight or Obesity ²	Hypoglycemia Risk ³	Access / Cost	Severe Hyperglycemia ⁴	Patients may present with >1 scenario
Preferred	GLP-1 RA or GIP/GLP-1 RA or SGLT2i	GLP-1 RA or GIP/GLP-1 RA or SGLT2i	TZD or SU/GLN	Basal Insulin ⁵ + Prandial Insulin or + GLP-1 RA GIP/GLP-1 RA ⁶	Order of medications suggests hierarchy for selection ⁷
Alternatives	DPP-4i ⁸ or TZD ⁹	DPP-4i ⁸ or TZD	Insulin or DPP-4i ¹⁰	Basal Insulin + other agent(s)	A1C >7.5% start 2 agents, A1C >9.0% or >1.5% above goal start 2-3 agents
Concerns or Not Preferred	Avoid SU/GLN	Avoid SU/GLN	GLP-1 RA GIP/GLP-1 RA SGLT2i COLSVL BRC-QR	Other agents likely ineffective in the setting of glucotoxicity ⁵	

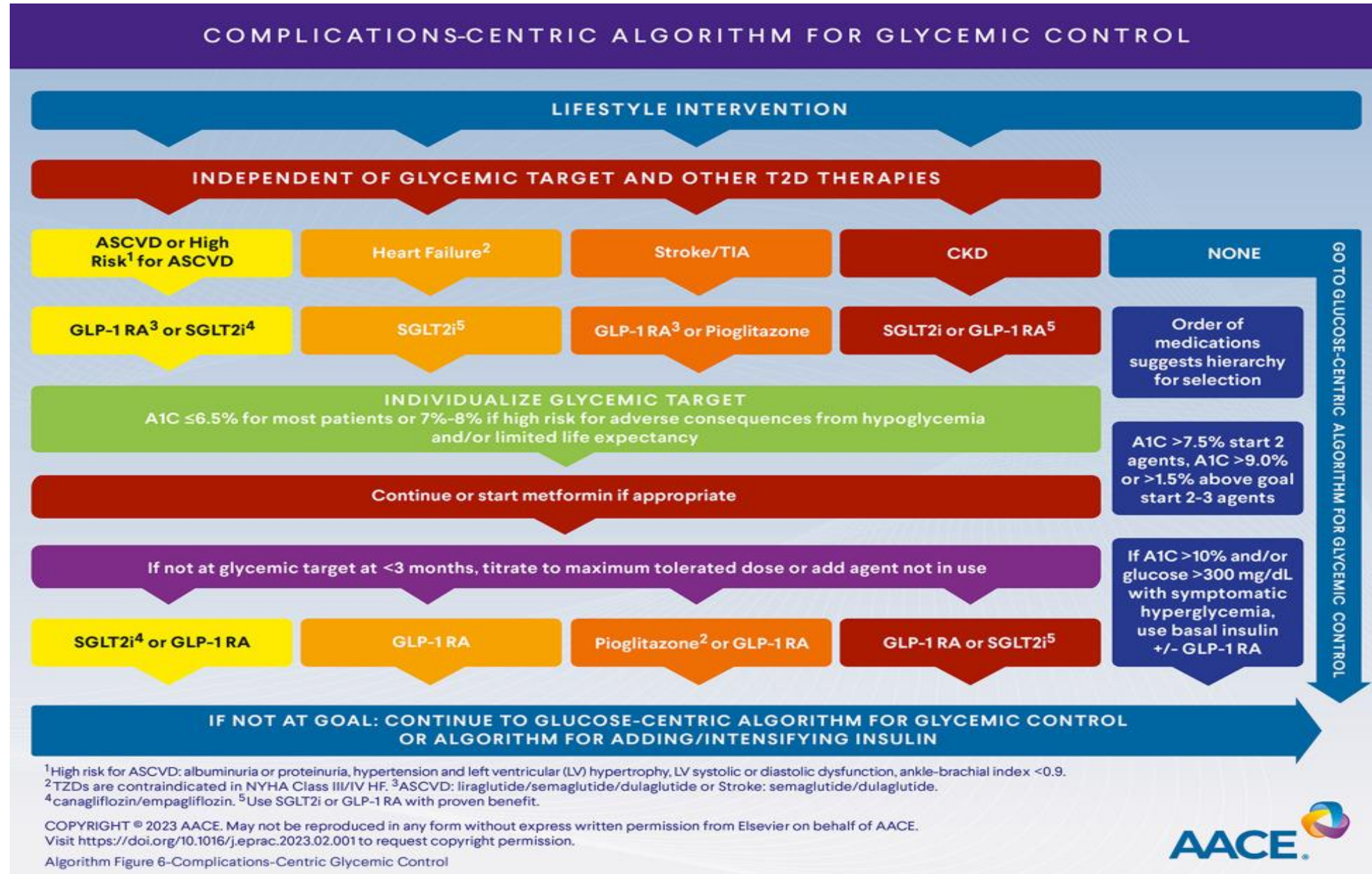
Titrate to maximum tolerated dose. If not at glycemic target at \leq 3 months, add best available agent not in use⁷
GLP-1 RA | GIP/GLP-1 RA | SGLT2i | TZD | DPP-4i | SU/GLN | COLSVL | BRC-QR | PRAML¹¹

IF NOT AT GOAL: CONTINUE TO ALGORITHM FOR ADDING/INTENSIFYING INSULIN

¹Take with food with dose titration for enhanced tolerance. ²See also COMPLICATIONS-CENTRIC MODEL FOR THE CARE OF PERSONS WITH OVERWEIGHT/OBESITY and PROFILES OF WEIGHT-LOSS MEDICATIONS table. ³Evaluate for issues leading to hypoglycemia or hypoglycemia unawareness and manage with patient-centered strategies. ⁴If A1C >10% and/or BG \geq 300 with symptomatic hyperglycemia, reduce glucose/A1C as promptly and safely as possible. ⁵See also ALGORITHM FOR ADDING/INTENSIFYING INSULIN. ⁶GLP-1 RA requires titration phase which can delay glycemic control. After glucose toxicity is resolved, consider adding other agents. ⁷See also PROFILES OF ANTIHYPERGLYCEMIC MEDICATIONS table. ⁸GLP-1 RA and DPP-4i should not be combined. ⁹TZD can cause fluid retention but have benefit for NAFLD, CVD prevention, dyslipidemia. ¹⁰Access/Cost are dependent on location of the market. Insulin costs vary widely with devices (e.g., pens versus vials) and formulations (e.g., analogues versus combinations such as 70/30). ¹¹PRAML is used as an adjunct with prandial insulin.



KHUYẾN CÁO AACE 2023





IDF 2025

RECOMMENDATIONS

	Optimal Care	Basic Care
At diagnosis		
No complications or low cardio-renal risk <i>In obese persons</i>	<ul style="list-style-type: none"> Lifestyle modification Metformin Combination therapy is an option <ul style="list-style-type: none"> Consider metformin and GLP-1RA 	<ul style="list-style-type: none"> Lifestyle modification Metformin <ul style="list-style-type: none"> Consider metformin and SGLT2i*
Risk of or with cardio-renal complications	<ul style="list-style-type: none"> Lifestyle modification Metformin and SGLT2i or GLP-1RA (SGLT2i preferred in HF)	<ul style="list-style-type: none"> Lifestyle modification Metformin and SGLT2i*
On therapy and not at glycaemic target		
No complications or low cardio-renal risk	<ul style="list-style-type: none"> Reinforce lifestyle modification <i>If only on metformin</i> <ul style="list-style-type: none"> Add SGLT2i <i>In obese persons</i> <ul style="list-style-type: none"> Add GLP-1RA <i>If on combination therapy</i> <ul style="list-style-type: none"> Add an SGLT2i or GLP-1RA If already taking an SGLT2i or GLP-1RA, add an agent from another BGL therapy 	<ul style="list-style-type: none"> Reinforce lifestyle modification <i>If only on metformin</i> <ul style="list-style-type: none"> Add SGLT2i* or any available BGL therapy <i>If on combination therapy</i> <ul style="list-style-type: none"> Add SGLT2i* or any available BGL therapy
Risk of or with cardio-renal complications	<ul style="list-style-type: none"> Reinforce lifestyle modification <i>If only on metformin:</i> <ul style="list-style-type: none"> Add SGLT2i or GLP-1RA <i>In obese persons</i> <ul style="list-style-type: none"> Add GLP-1RA <i>If on combination therapy</i> <ul style="list-style-type: none"> Add an SGLT2i or GLP-1RA If already taking an SGLT2i or GLP-1RA, add an agent from another BGL therapy 	<ul style="list-style-type: none"> Reinforce lifestyle modification <i>If only on metformin:</i> <ul style="list-style-type: none"> Add SGLT2i* or any available BGL therapy <i>If on combination therapy</i> <ul style="list-style-type: none"> Add SGLT2i* or any available BGL therapy

* SGLT2 inhibitors are increasingly available in several low- and middle-income countries at generally affordable cost.
 BGL, blood glucose-lowering; GLP-1RA, glucagon-like peptide-1 receptor agonist; HF, heart failure; SGLT2i, sodium-glucose cotransporter-2 inhibitor.



Ưu và nhược điểm của các thuốc điều trị ĐTĐ typ 2 ở người cao tuổi

Table 3 Pros and cons of antihyperglycaemic therapies for the treatment of type 2 diabetes in older adults

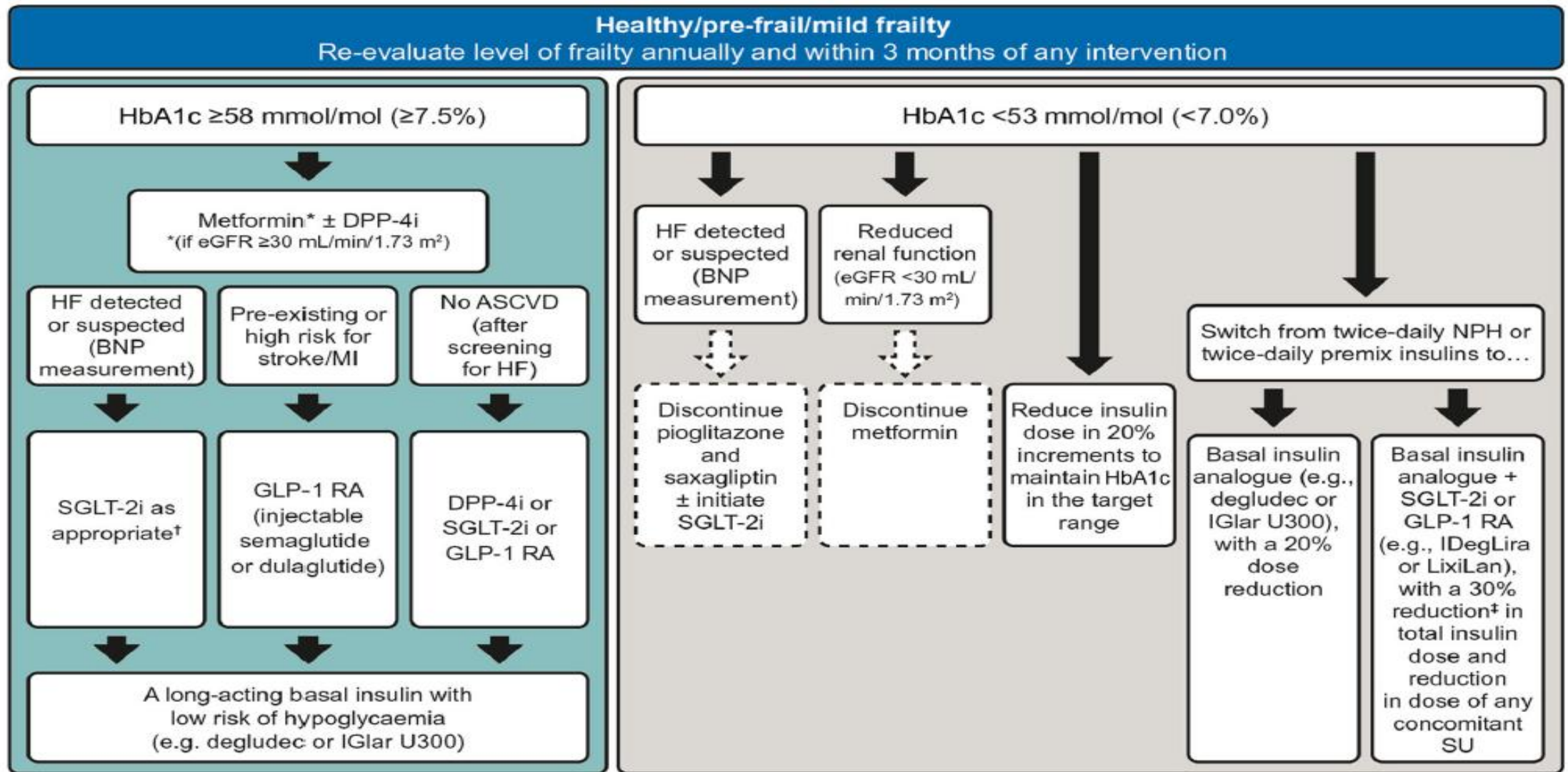
Antihyperglycaemic therapy	Pro	Con
<i>Metformin</i> Alters mitochondrial cell energetics to inhibit gluconeogenesis, oppose the action of glucagon and increase insulin sensitivity [79]	<ul style="list-style-type: none"> • Inexpensive • Well-established, generally well-tolerated standard therapy • Potential CV benefit demonstrated in UKPDS study [80] • Low hypoglycaemia risk • Can be combined with all other diabetes therapies 	<ul style="list-style-type: none"> • Reduced appetite and gastrointestinal disturbance • Possible association with vitamin B12 deficiency [81] • Moderate weight loss seen in some people may be undesirable with frailty • Contraindicated in severe renal failure • Should be used with caution in those with impaired hepatic function or cardiac failure, due to increased risk of lactic acidosis
<i>Sulphonylureas and glinides</i> Stimulate pancreatic insulin secretion regardless of blood glucose concentration [82]	<ul style="list-style-type: none"> • Inexpensive • Can be combined with other therapies • Increased potency in older adults may sometimes be beneficial 	<ul style="list-style-type: none"> • Require functioning beta-cells • Hypoglycaemia risk [45] • Increased potency following weight loss (with improved insulin sensitivity) may further increase hypoglycaemia risk
<i>DPP-4 inhibitors</i> Inhibit breakdown of endogenous GLP-1, which glucose-dependently stimulates insulin secretion and inhibits glucagon secretion [82]	<ul style="list-style-type: none"> • Well tolerated • Formally tested in older adults [53] • May delay disease progression if used early with metformin • Low risk of hypoglycaemia [52] • Safe in all stages of renal failure, at an appropriate dose • No effect on weight 	<ul style="list-style-type: none"> • Moderate glucose-lowering efficacy • Neutral effect (apart from saxagliptin) on CV death, MI, stroke and hospitalisation for heart failure [54], in contrast to SGLT-2is and GLP-1 RAs • Possible issues with increased hospitalisation for heart failure with saxagliptin (\pm alogliptin) [83] • Relatively expensive
<i>SGLT-2 inhibitors</i> Inhibit reabsorption of glucose (from renal tubules), leading to increased urinary glucose output and osmotic diuresis [84]	<ul style="list-style-type: none"> • CVOTs have shown reduction in MACE [57] • Benefits demonstrated for people with diabetes and heart failure [54] • Potential benefit in reducing progression of renal impairment [59] • Low hypoglycaemia risk 	<ul style="list-style-type: none"> • Weight loss could result in sarcopenia • Risk of candidiasis • Potential increased urinary incontinence • Lack of glucose-lowering efficacy in established renal impairment [61] • Risk of euglycaemic diabetic ketoacidosis

Table 3 continued

Antihyperglycaemic therapy	Pro	Con
<i>GLP-1 RAs</i> Stimulate insulin secretion, inhibit glucagon secretion and also reduce appetite. GLP-1 RAs work in a glucose-dependent manner [82]	<ul style="list-style-type: none"> • CVOTs have shown CV benefits with some, particularly in patients with ASCVD, and those at high risk of CV events [57, 58] • Renoprotective effects [59] • Low hypoglycaemia risk despite good glucose-lowering efficacy • Once-weekly administration possible with some [55] • A once-daily oral formulation of semaglutide is now available [56] 	<ul style="list-style-type: none"> • Weight loss could result in sarcopenia • Nausea is common, and reduced appetite could be problematic • Most are given by sc injection • Relatively expensive
<i>TZDs</i> Increase cellular expression of glucose transporters, thereby increasing insulin sensitivity and peripheral glucose uptake [85]	<ul style="list-style-type: none"> • Generally well tolerated • Low hypoglycaemia risk • Potential CV benefit with pioglitazone [47] 	<ul style="list-style-type: none"> • Fluid retention may exacerbate heart failure [19] • Risk of osteoporosis and fractures [49–51] • Ongoing debate regarding risk of bladder cancer [48]
<i>Exogenous basal insulin</i> Binds to insulin receptors in liver to inhibit glycogenolysis and gluconeogenesis, and binds to peripheral insulin receptors (muscle, adipose) to stimulate glucose uptake	<ul style="list-style-type: none"> • Established efficacy • Inexpensive 	<ul style="list-style-type: none"> • Requires resuspension • May need twice-daily injections • Weight gain (limited harm) • Hypoglycaemia risk • Variable glucose-lowering effect from injection to injection
<i>NPH insulin</i> [63]		



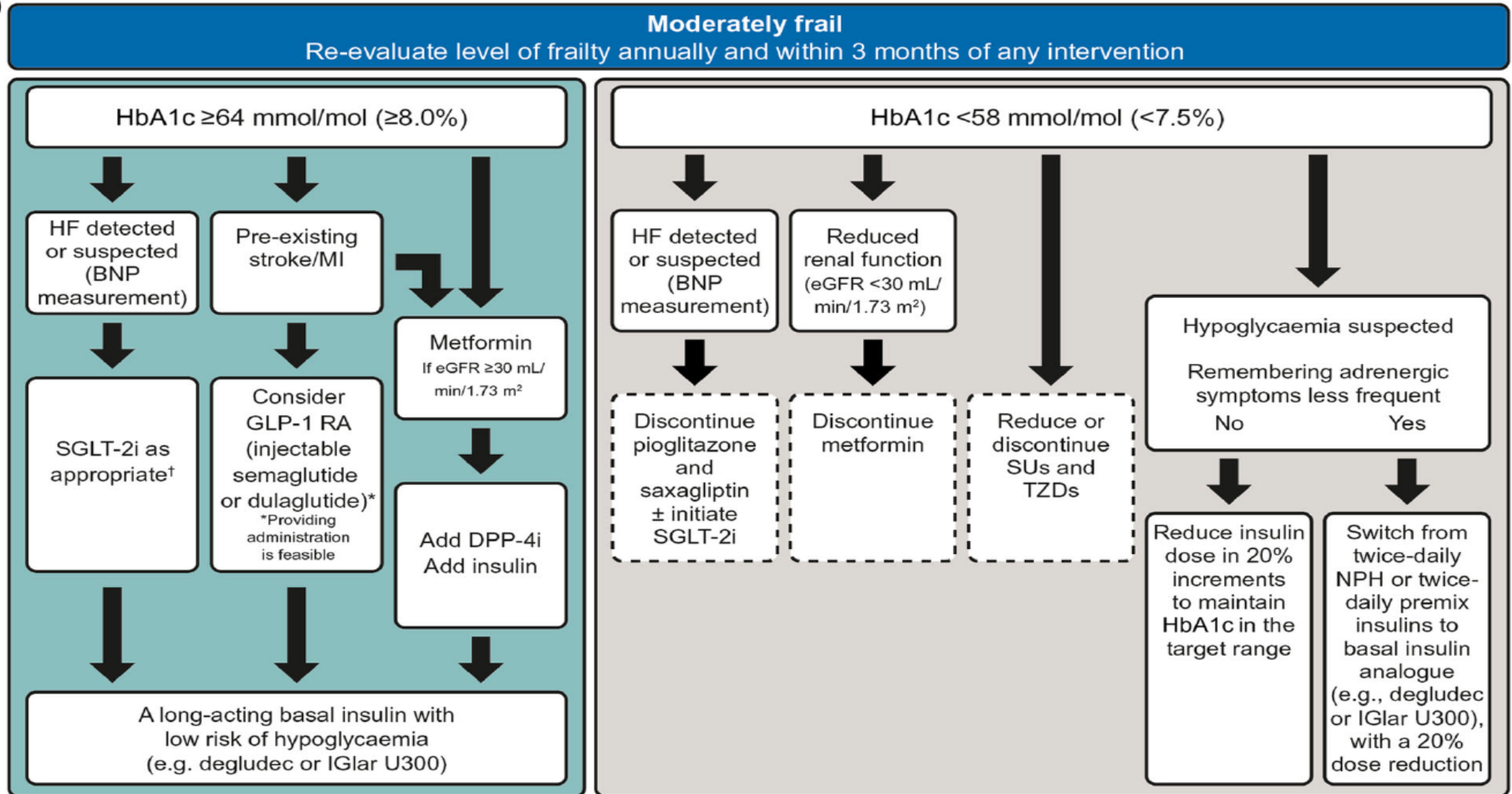
Lưu đồ điều trị ĐTD ở BN cao tuổi dựa theo đánh giá suy yếu (khỏe- suy yếu nhẹ)





Lưu đồ điều trị ĐTD ở BN cao tuổi dựa theo đánh giá suy yếu (mức độ trung bình)

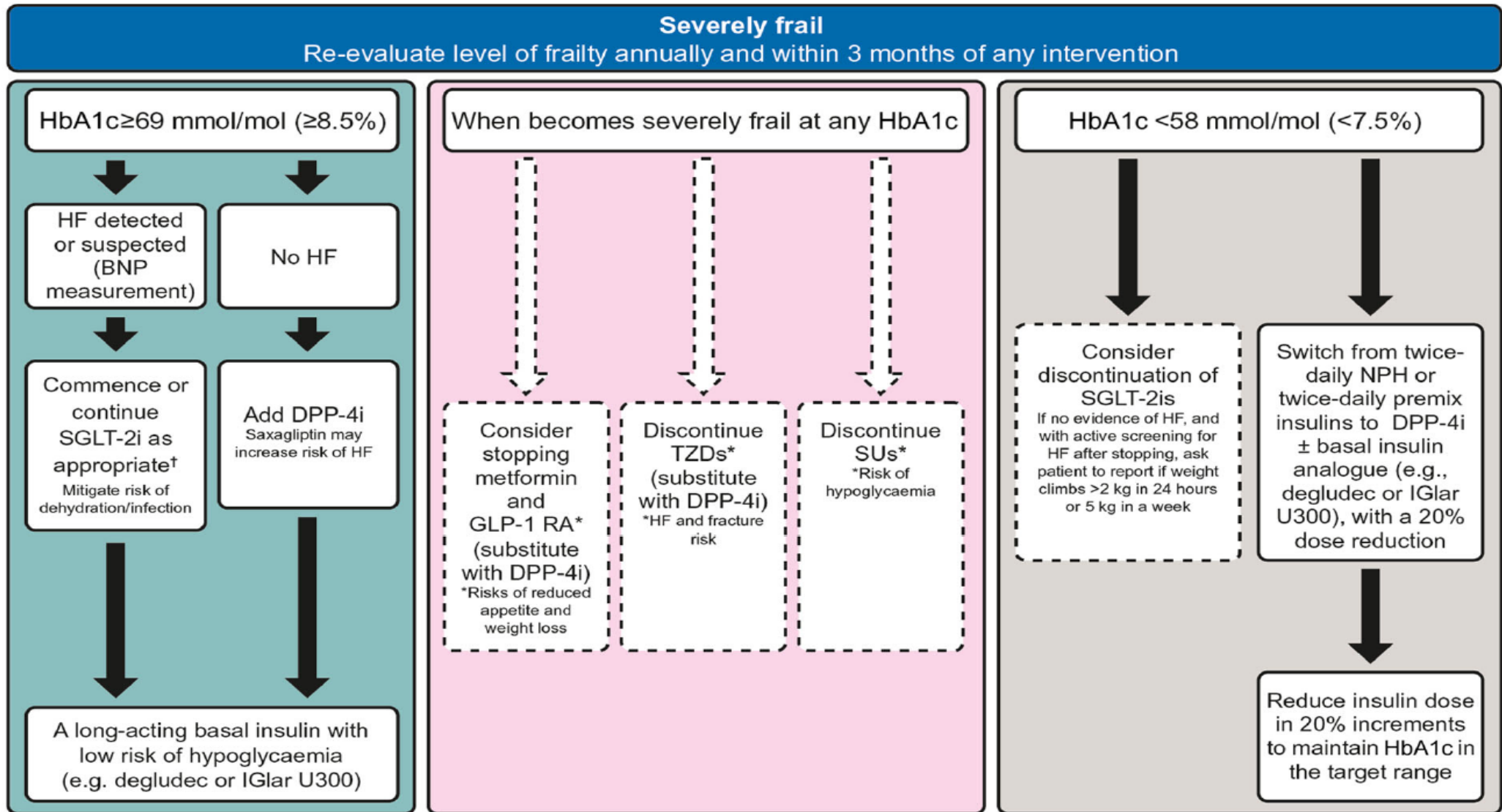
(b)





Lưu đồ điều trị ĐTĐ ở BN cao tuổi dựa theo đánh giá suy yếu (mức độ nặng)

(c)





Mục tiêu HA theo khuyến cáo ESC 2024

<p>Because the CVD benefit of an on-treatment systolic BP target of 120–129 mmHg may not generalize to the following specific settings, personalized and more lenient systolic BP targets (e.g. <140 mmHg): should be considered among patients meeting the following criteria:</p> <ul style="list-style-type: none"> • pre-treatment, symptomatic, orthostatic hypotension; • and/or age ≥ 85 years. 	IIa
<p>Because the CVD benefit of an on-treatment systolic BP target of 120–129 mmHg may not generalize to the following specific settings, personalized and more lenient BP targets (e.g. <140/90 mmHg) may be considered among patients meeting the following criteria:</p> <ul style="list-style-type: none"> • clinically significant, moderate to severe frailty at any age; • and/or limited predicted lifespan (<3 years). 	IIb

<p>In most adults with elevated BP and diabetes, after a maximum of 3 months of lifestyle intervention, BP lowering with pharmacological treatment is recommended for those with confirmed office BP $\geq 130/80$ mmHg to reduce CVD risk.</p>	I	A
<p>In persons with diabetes who are receiving BP-lowering drugs, it is recommended to target systolic BP to 120–129 mmHg, if tolerated.</p>	I	A
<p>In patients with diabetic or non-diabetic moderate-to-severe CKD and confirmed BP $\geq 130/80$ mmHg, lifestyle optimization and BP-lowering medication are recommended to reduce CVD risk, provided such treatment is well tolerated.</p>	I	A
<p>In adults with moderate-to-severe CKD who are receiving BP-lowering drugs and who have eGFR >30 mL/min/1.73 m², it is recommended to target systolic BP to 120–129 mmHg, if tolerated. Individualized BP targets are recommended for those with lower eGFR or renal transplantation.</p>	I	A
<p>ACE inhibitors or ARBs are more effective at reducing albuminuria than other BP-lowering agents and should be considered as part of the treatment strategy for patients with hypertension and microalbuminuria or proteinuria.</p>	IIa	B



KHUYẾN CÁO ESC 2024

Chronic kidney disease and diabetes—Section 9		
Intensive LDL-C lowering with statins or a statin/ezetimibe combination is recommended.	I	A
A SGLT2 inhibitor (canagliflozin, empagliflozin, or dapagliflozin) is recommended in patients with T2DM and CKD with an eGFR ≥ 20 mL/min/1.73 m ² to reduce the risk of CVD and kidney failure.	I	A
Finerenone is recommended in addition to an ACE-I or ARB in patients with T2DM and eGFR > 60 mL/min/1.73 m ² with a UACR ≥ 30 mg/mmol (≥ 300 mg/g), or eGFR 25–60 mL/min/1.73 m ² and UACR ≥ 3 mg/mmol (≥ 30 mg/g) to reduce CV events and kidney failure.	I	A
Low-dose ASA (75–100 mg o.d.) is recommended in patients with CKD and ASCVD.	I	A
Treatment with intensive medical or an initial invasive strategy is recommended in people with CKD, diabetes, and stable moderate or severe CAD, due to similar outcomes.	I	B
Kidney specialist advice may be considered for managing a raised serum phosphate, other evidence of CKD-MBD, and renal anaemia.	IIb	C
Combined use of an ARB with an ACE-I is not recommended.	III	B

Recommendation Table 24 — Recommendations for patients with chronic kidney disease and diabetes

Recommendations	Class ^a	Level ^b
Intensive LDL-C lowering with statins or a statin/ezetimibe combination is recommended. ^{c,697,698}	I	A
A BP target of $\leq 130/80$ mmHg is recommended to reduce risk of CVD and albuminuria. ¹⁹⁶	I	A
Personalized HbA1c targets 6.5–8.0% (48–64 mmol/mol) are recommended, with a target $< 7.0\%$ (< 53 mmol/mol) to reduce microvascular complications, wherever possible. ^{132,133}	I	A
The maximum tolerated dose of an ACE-I or ARB is recommended. ^{705–709}	I	A
A SGLT2 inhibitor (canagliflozin, empagliflozin, or dapagliflozin) ^d is recommended in patients with T2DM and CKD with an eGFR ≥ 20 mL/min/1.73 m ² to reduce the risk of CVD and kidney failure. ^{150,153,542,543,711,714,715}	I	A



Mục tiêu kiểm soát Lipid máu

ASCVD RISK REDUCTION ALGORITHM: DYSLIPIDEMIA

ASSESS LIPID PANEL (LDL-C, HDL-C, Non-HDL-C, TG, Apo B)¹

LIFESTYLE INTERVENTION: increase ↑ dietary fiber | ↑ healthy fat | ↓ saturated fat | ↓ simple carbs | ↓ added sugars | ↑ physical activity | weight management

PREDIABETES OR T2D + RISK FACTORS: USE ASCVD 10-YEAR RISK CALCULATOR

Major ASCVD Risk Factors: Age >40 | HTN | CKD >3a | Smoking | Family History of Premature ASCVD | Low HDL-C | High Non-HDL-C

INITIATE STATIN THERAPY

	HIGH RISK <10% T2D <10 years <2 other risk factors No target organ damage	VERY HIGH RISK 10%-20% T2D >10 years Age >40 years No ASCVD No target organ damage ≥2 additional risk factors	EXTREME RISK >20% T2D & ASCVD Severe target organ damage: eGFR <45 mL/min/1.73 m ² , UACR >300, ABI <0.9, LV systolic/diastolic dysfunction	
	Moderate-intensity statin	High-intensity statin		
GOAL	LDL-C (mg/dL)	<100	<70	<55
	Non-HDL-C (mg/dL)	<130	<100	<80
	TG (mg/dL)	<150	<150	<150
	Apo B (mg/dL)	<90	<80	<70

Monitor and titrate therapy every 3-6 months to achieve lipid targets according to risk²

Intensify statin and lifestyle & optimize glycemic control

Add ezetimibe

Consider additional therapy: bile acid sequestrant, bempedoic acid, PCSK9 inhibitor, inclisiran

HYPERTRIGLYCERIDEMIA MANAGEMENT:



¹ Baseline LDL-C >190 mg/dL, consider familial hypercholesterolemia. ² Statin intolerance: Use alternative statin with lower incidence of myopathy (pitavastatin, extended-release fluvastatin) or decrease dose/frequency, use non-statin Rx, check for Rx interactions, consider CoQ10. ³ If TG >200 and HDL <40, add fibrate/omega-2 to achieve apo B and non-HDL goals. ⁴ Elevated triglycerides >500 mg/dL to >1000 mg/dL can cause acute pancreatitis. Urgent intervention with dietary management and fibrate/omega 3 therapy is needed. Suspect familial chylomicronemia syndrome or lipodystrophy, refer to lipid specialist. ⁵ For severe hypertriglyceridemia >1000 refractory to previous interventions, consider niacin to reduce the risk of pancreatitis. Niacin may lower TG and Lp(a) but does not reduce ASCVD and can promote hyperglycemia.



KẾT LUẬN

- BN cao tuổi thường đa bệnh và hội chứng lão khoa
- Điều trị ĐTĐ typ 2 ở người cao tuổi đòi hỏi sự cá thể hóa và toàn diện.
- Theo quy tắc “start low, go slow”: bắt đầu với liều thấp, điều chỉnh từ từ, đặc biệt quan trọng khi dùng thuốc có nguy cơ hạ đường huyết. Sau mỗi thay đổi điều trị, cần tái đánh giá HbA_{1c} sau khoảng 3 tháng, theo dõi tình trạng suy yếu và điều chỉnh mục tiêu nếu cần.
- Tránh điều trị quá mức, đơn giản hóa phác đồ, giảm liều hoặc ngừng thuốc không cần thiết, đặc biệt tránh suy giảm chức năng, ngã do hạ đường huyết, gánh nặng đơn thuốc
- Ưu tiên các thuốc ít gây hạ đường huyết, an toàn trên tim mạch – thận. GLP1, SGLT2i , Metfomin và DPP4i là những lựa chọn hiệu quả và an toàn khi sử dụng cho BN ĐTĐ cao tuổi

