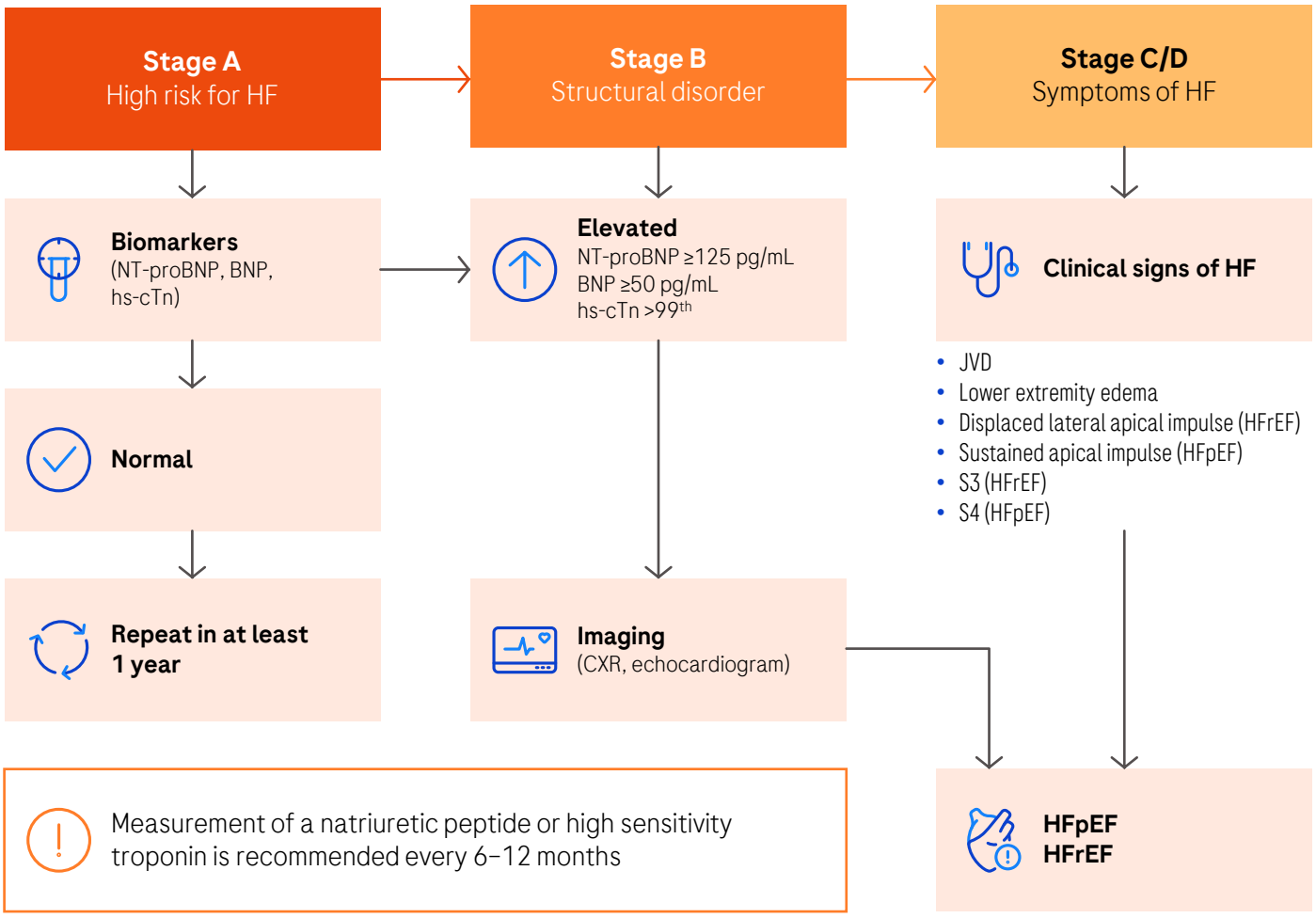
Guideline recommendations on use of NT-proBNP in patients with type 2 diabetes

Major guidelines around the world recommend the use of NT-proBNP for HF risk stratification in T2D patients (ADA, AHA/ACC/HFSA) or for investigating a suspicion of HF (ESC).[1-5]

2022 ADA Consensus statement recommends a stepwise approach for evaluation of patients with risk of heart failure and diagnosis of heart failure. The use of natriuretic peptides is recommended every 6-12 months to assess the progression of asymptomatic patients (stages A and B) to symptomatic heart failure.[2]



Biomarker screening can provide **timely and effective detection of earlier stages of HF** in people with diabetes

ACC, American Colleague of Cardiology; ADA, American Diabetes Association; AHA, American Heart Association; BNP, B-type natriuretic peptide; ESC, European Society of Cardiology; HF, heart failure; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; HFSA, Heart Failure Society of America; JVD, Jugular vein distention; NT-proBNP, N-terminal pro-B type natriuretic peptide; S3, third heart sound; S4, fourth heart sound; T2D, Type 2 Diabetes.

1. Heidenreich PA et al. J Am Coll Cardiol. 2022;3;79:e263–421. 2. Pop-Busui R et al. Diabetes Care. 2022;45:1670–1690. 3. ADA Professional Practice Committee. Summary of revisions: Standards of Care in Diabetes–2024. Diabetes Care 2024;47(Suppl. 1):S5–S10 4. Marx N et al. Eur Heart J. 2023. 5. Clin Diabetes. 2024 Spring;42(2):209-211.

2024 ADA Guidelines recommend NT-proBNP screening for asymptomatic cardiovascular disease patients with diabetes and starting treatment of these patients[3,5]

Consider screening adults with diabetes by measuring BNP or NT-proBNP to facilitate prevention of stage C heart failure in adults with diabetes

Echocardiography is recommended for those with abnormal levels

Treatment of stage B HF in people with diabetes[5]

To reduce the risk for progression to stage C HF

Treatment with ACEi or ARB and a ß-blocker is recommended

If high risk for or established CVD

If diabetic kidney disease

SGLTi

Finerenone

SGLT2i inhibitor (canagliflozin, dapagliflozin or empagliflozin)

OR

SGLT1/2i (sotagliflozin)

To reduce the risk of HF hospitalisation

ACC, American Colleague of Cardiology; ACE, angiotensin converting enzyme; ACEi, angiotensin converting enzyme inhibitor; ADA, American Diabetes Association; AF, atrial fibrillation; AHA, American Heart Association; ARB, angiotensin receptor blocker; BNP, B-type natriuretic peptide; CVD, cardiovascular disease; CXR, chest x-ray; ECG, electrocardiogram; ESC, European Society of Cardiology; HF, heart failure; HFmrEF, heart failure with mildly reduced ejection fraction; HFpEF, heart failure with preserved ejection fraction; HFrEF, heart failure with reduced ejection fraction; HFSA, Heart Failure Society of America; hs-cTn, high sensitivity cardiac troponin; JVD, jugular vein distention; LVEF, left ventricular ejection fraction; NT-proBNP, N-terminal pro-B type natriuretic peptide; S3, third heart sound; S4, fourth heart sound; SGLT, sodium–glucose cotransporter; SGLT2, sodium-glucose cotransporter-2; SGLT2i, sodium-glucose cotransporter-2 inhibitors; SGLTi, sodium–glucose cotransporter inhibitor; T2D, type 2 diabetes.

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2024 ADA guidelines recommend screening patients with type 2 diabetes with NT-proBNP for heart failure to prevent progression to Stage C heart failure[3]

Screening	Level
Adults with diabetes are at increased risk for the development of asymptomatic cardiac structural or functional abnormalities (stage B HF) or symptomatic (stage C) HF. Consider screening adults with diabetes by measuring a natriuretic peptide (BNP or NT-proBNP) to facilitate prevention of stage C HF.	**B**
In asymptomatic individuals with diabetes and abnormal natriuretic peptide levels, echocardiography is recommended to identify stage B heart failure.	A
Treatment	
In individuals with diabetes and asymptomatic stage B HF, ACE inhibitors/ARBs and β-blockers are recommended to reduce the risk for progression to symptomatic (stage C) HF.	A
In individuals with type 2 diabetes and asymptomatic stage B HF or with high risk of or established CVD, treatment with an SGLT inhibitor (including SGLT2 or SGLT1/2 inhibitors) is recommended to reduce the risk of hospitalization for HF.	A

2022 AHA/ACC/HFSA HF guidelines recommend use of NT-proBNP to screen patients with type 2 diabetes and assess risk of developing heart failure.[1]

Diabetology guidelines are in line with the cardiology guidelines recommendations for natriuretic peptide-based screening of T2D patients.[1-4]

Recommendations for use of biomarkers for prevention, initial diagnosis, and risk stratification	Class	Level
In individuals presenting with dyspnea, measurement of BNP or NT-proBNP is useful to support a diagnosis or exclusion of HF	1	A
In people with chronic HF, measurements of BNP or NT-proBNP levels are recommended for risk stratification	1	A
In individuals hospitalized for HF, measurement of BNP or NT-proBNP levels at admission is recommended to establish prognosis	1	A
For individuals at risk of developing HF, natriuretic peptide biomarker–based screening followed by team-based care, including a cardiovascular specialist optimizing GDMT, can be useful to prevent the development of LV dysfunction (systolic or diastolic) or new-onset HF	**2a**	**BR**
In individuals hospitalized for HF, a predischarge BNP or NT-proBNP level can be useful to inform the trajectory of the patient and establish a postdischarge prognosis	2a	BR
Recommendations for the management of diabetes in people with HF		
In people with HF and type 2 diabetes, the use of SGLT2 inhibitors is recommended for the management of hyperglycemia and to reduce HF related morbidity and mortality	1	A

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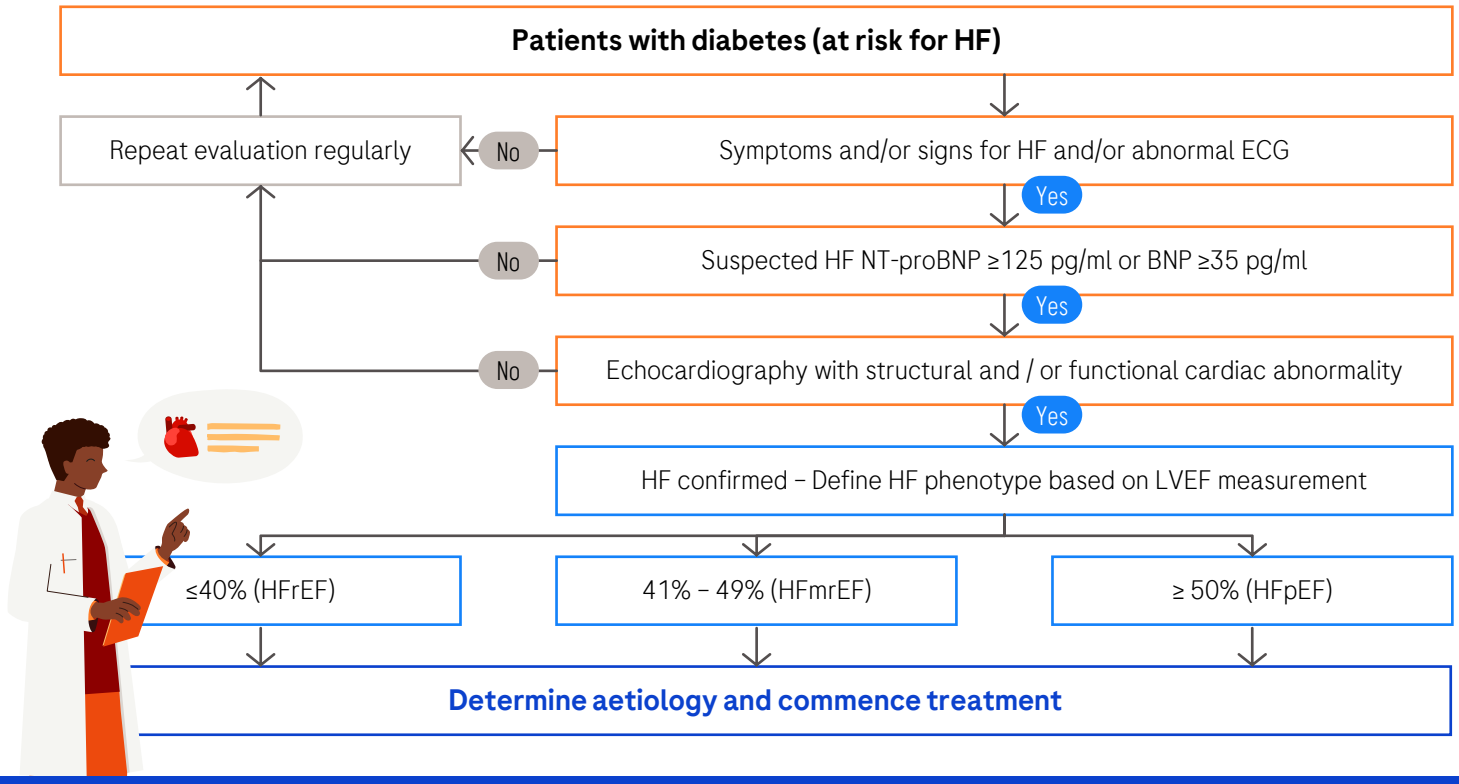
2023 ESC guidelines recommend use of NT-proBNP for patients with type 2 diabetes as an aid in diagnosis of heart failure. It is important to recognize the signs and symptoms in stage C and test NT-proBNP to confirm or rule-out a diagnosis of heart failure.[4]

Evaluating for heart failure	Class	Level
If HF is suspected, it is recommended to measure BNP / NT-proBNP	**1**	**B**
Systematic survey for HF symptoms and/or signs of HF is recommended at each clinical encounter in all patients with diabetes	1	C

- Values below the cut-offs (NT-proBNP <125 pg/mL; <365 pg/mL in AF) make the diagnosis of HF unlikely and other diagnoses should be considered
- Elevated levels support the diagnosis of HF and may guide further cardiac investigation



Use of NT-proBNP is **recommended by major clinical guidelines** for screening patients with type 2 diabetes for heart failure and aid in diagnosis of heart failure for these patients.[1-5]

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