

CHF Management by the Hospitalist and 2022 ACC/AHA/HFSA Guideline Updates

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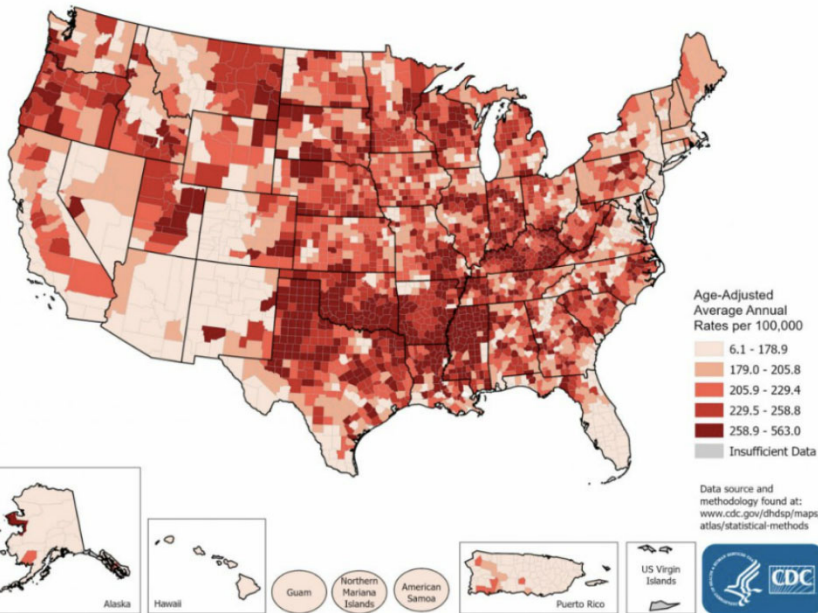
DISCLOSURES

Dr. Alexandra Macpherson - Nothing to disclose

Upon completion of this activity participants should be able to:

- ✓ Understand the definition of heart failure and identify a Acutely decompensated Heart Failure
- ✓ Be aware of the 2022 HF Guidelines
- ✓ Stage HF and implement primary prevention in stages A and B
- ✓ Practice GDMT and feel comfortable prescribing SGLT2i in all HF patients
- ✓ Provide Primary Prevention and recognize barriers to care

Heart Failure Death Rates, 2018 - 2020
Adults, Ages 35+, by County



- A 2018 study, found heart failure was the most common hospital discharge diagnosis, accounting for 5.1% of all discharges
- There are changes to HF classification, now mrEF and impEF
- Hospitalists manage most acute heart failure admissions
- Understand Goal Directed Medical Therapy (GDMT) to keep patients out of an acute exacerbation
- Addressing barriers to proper identification of those at risk of heart failure and management of those risk factors can reduce disparity in vulnerable populations

REVIEW ARTICLE | Originally Published 1 April 2022 | 

 Check for updates

2022 AHA/ACC/HFSA Guideline for the Management of Heart Failure: Executive Summary: A Report of the American College of Cardiology/American Heart Association Joint Committee on Clinical Practice Guidelines

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Top 10 Take-Home Messages

Heidenreich, P. A. et al. (2022). 2022 AHA/ACC/HFSA Guideline for Heart Failure. Circulation.

1. Guideline-directed medical therapy (GDMT) for heart failure (HF) with reduced ejection fraction (HFrEF) now includes 4 medication classes, including sodium-glucose cotransporter-2 inhibitors (SGLT2i).
2. SGLT2i have a Class of Recommendation 2a in HF with mildly reduced ejection fraction (HFmrEF). Weaker recommendations (Class of Recommendation 2b) are made for ARNi, ACEi, ARB, MRA, and beta-blocker in this population.
3. New recommendations for HFpEF are made for SGLT2i (Class of Recommendation 2a), MRAs (Class of Recommendation 2b) and ARNi (Class of Recommendation 2b). Several prior recommendations have been renewed, including treatment of hypertension (Class of Recommendation 1), treatment of atrial fibrillation (Class of Recommendation 2a), use of ARB (Class of Recommendation 2b), and avoidance of routine use of nitrates or phosphodiesterase-5 inhibitors (Class of Recommendation 3: No Benefit).
4. Improved left ventricular ejection fraction (LVEF) is used to refer to patients with previous HFrEF who now have LVEF > 40%. These patients should continue their treatment for HFrEF.
5. Value statements were created for selected recommendations in which high-quality, cost-

effectiveness studies of the intervention have been published.

6. Amyloid heart disease has new recommendations for treatment, including screening for serum and urine monoclonal light chains, bone scintigraphy, genetic sequencing, tetramer stabilizer therapy, and anticoagulation.
7. Evidence supporting increased filling pressures is important for the diagnosis of HF if the LVEF is > 40%. Evidence for increased filling pressures can be obtained from noninvasive (eg, natriuretic peptide, diastolic function on imaging) or invasive testing (eg, hemodynamic measurement).
8. Patients with advanced HF who wish to prolong survival should be referred to a team specializing in HF. An HF specialty team reviews HF management, assesses suitability for advanced HF therapies and uses palliative care including palliative inotropes where consistent with the patient's goals of care.
9. Primary prevention is important for those at risk for HF (stage A) or pre-HF (stage B). Stages of HF were revised to emphasize the new terminologies of *at risk* for HF for stage A and pre-HF for stage B.
10. Recommendations are provided for selected patients with HF and iron deficiency, anemia, hypertension, sleep disorders, type 2 diabetes, atrial fibrillation, coronary artery disease, and malignancy.

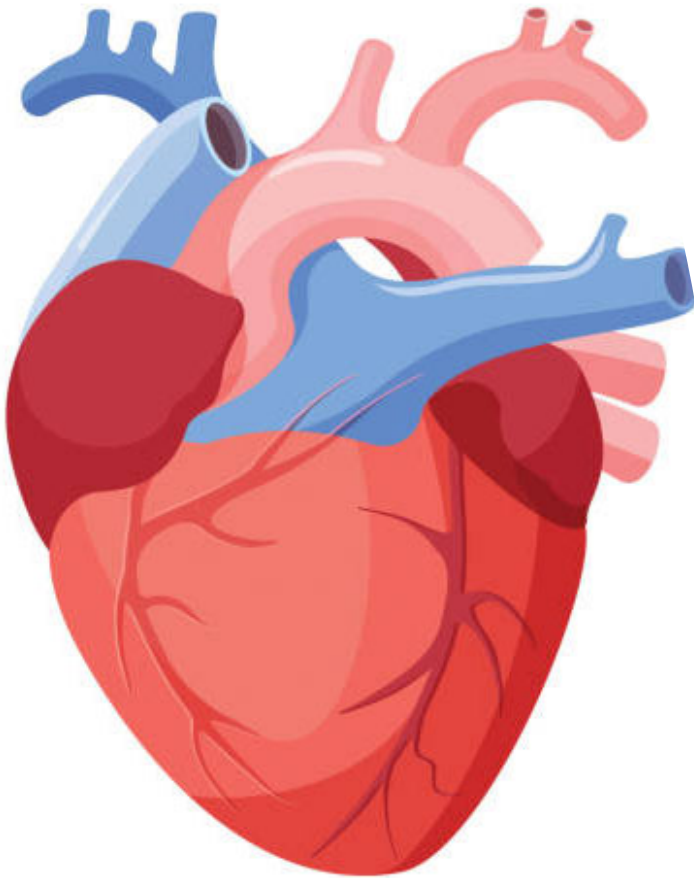
AHA Stages of Heart Failure

A – at high risk for developing disease

B – structural heart disease without signs or symptoms

C – structural heart disease with past or current symptoms

D – advanced/refractory heart failure symptoms don't respond to treatment



Types of HF according to LVEF

HFrEF

- <40% - reduce EF

HFimpEF

- EF previously less than 40% now > 40%

HFmrEF

- 41-49% - moderately reduced EF

HFpEF

- >49% - preserved EF

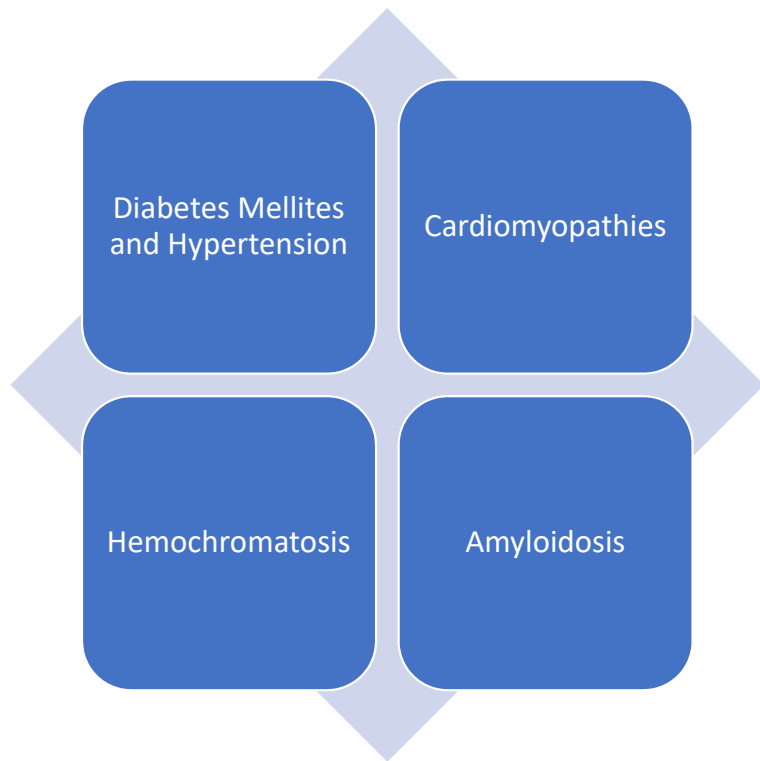
Comparison of ACCF/AHA Stages of Heart Failure and NYHA Functional Classifications

ACCF/AHA Stages of HF		NYHA Functional Classification	
A	At high risk for HF but without structural heart disease or symptoms of HF	None	
B	Structural heart disease but without signs or symptoms of HF	I	No limitation of physical activity. Ordinary physical activity does not cause symptoms of HF.
C	Structural heart disease with prior or current symptoms of HF	I	No limitation of physical activity. Ordinary physical activity does not cause symptoms of HF.
		II	Slight limitation of physical activity. Comfortable at rest, but ordinary physical activity results in symptoms of HF.
		III	Marked limitation of physical activity. Comfortable at rest, but less than ordinary activity causes symptoms of HF.
		IV	Unable to carry on any physical activity without symptoms of HF, or symptoms of HF at rest.
D	Refractory HF requiring specialized interventions	IV	Unable to carry on any physical activity without symptoms of HF, or symptoms of HF at rest.

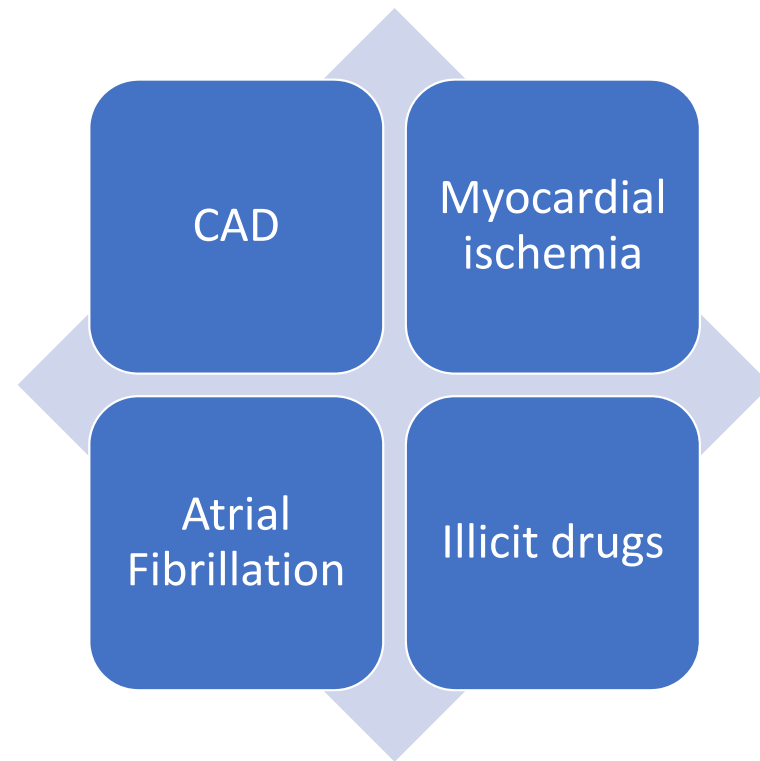
ACCF indicates American College of Cardiology Foundation; AHA, American Heart Association; HF, heart failure; and NYHA, New York Heart Association.

www.acrosspg.com

Preserved

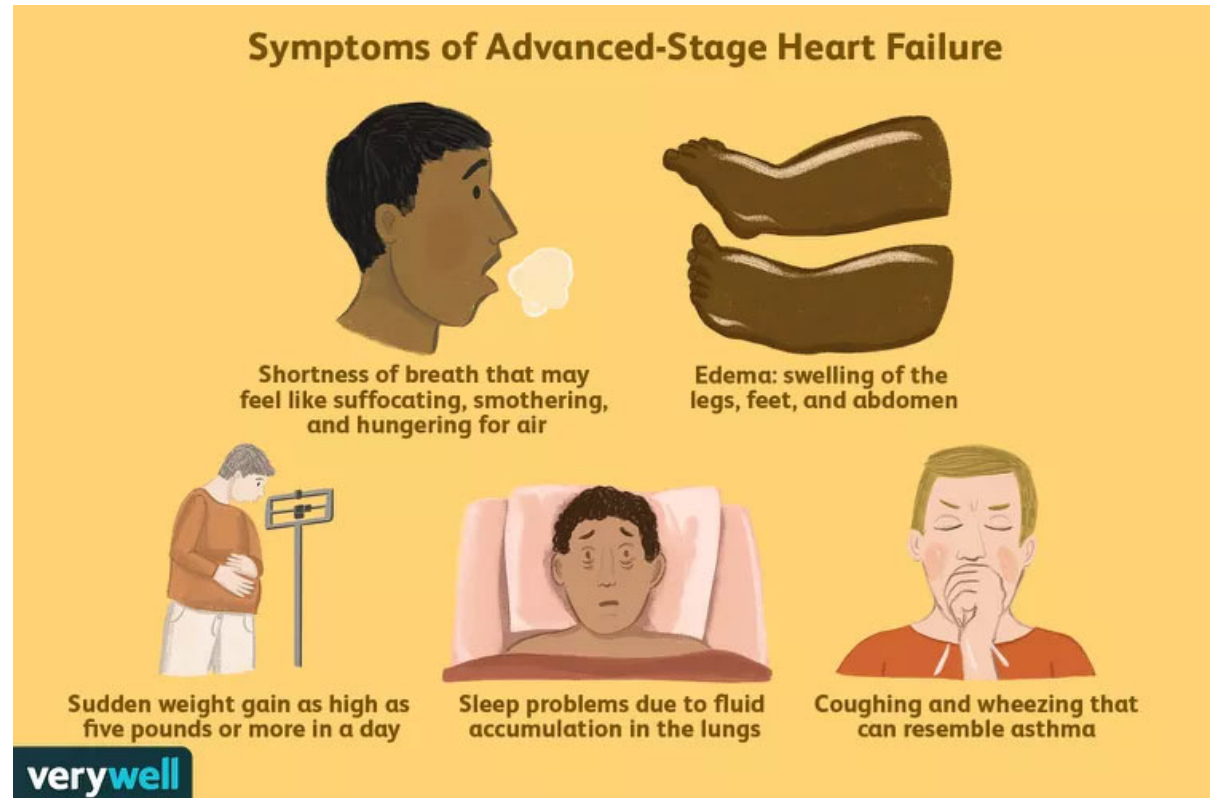


Reduced



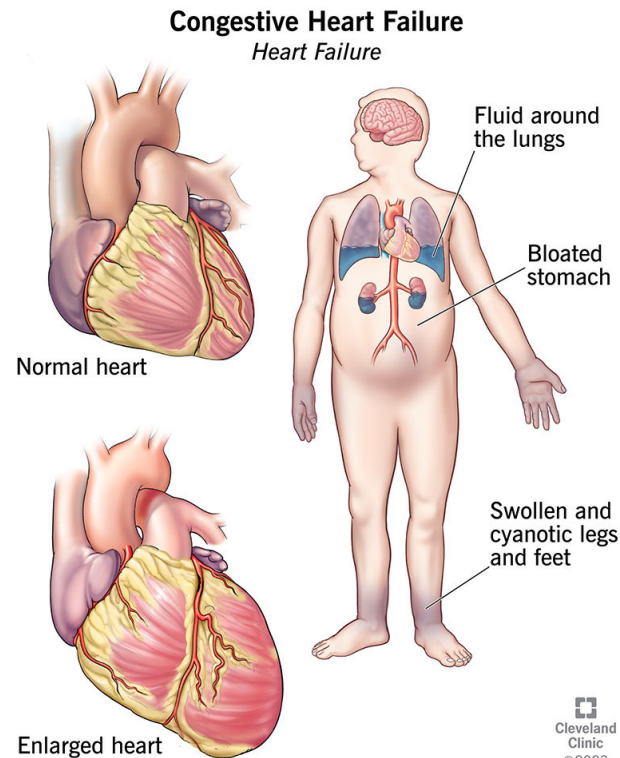
Acutely Decompensated Heart Failure

- Reduced
- Wet/Dry - Congestion
- Cold/ Warm - Perfusion



Inadequate perfusion

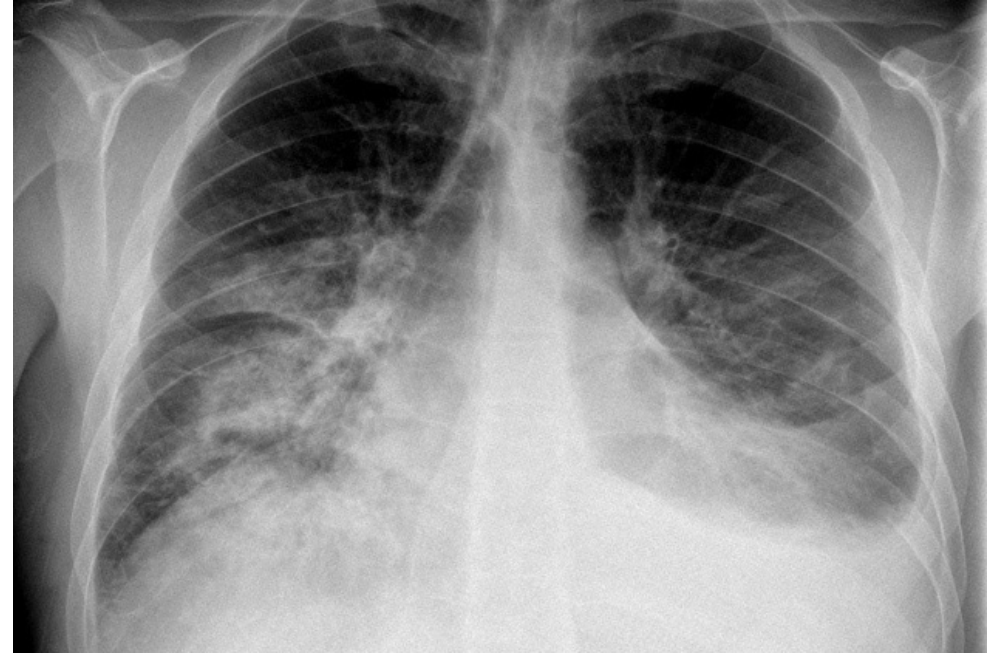
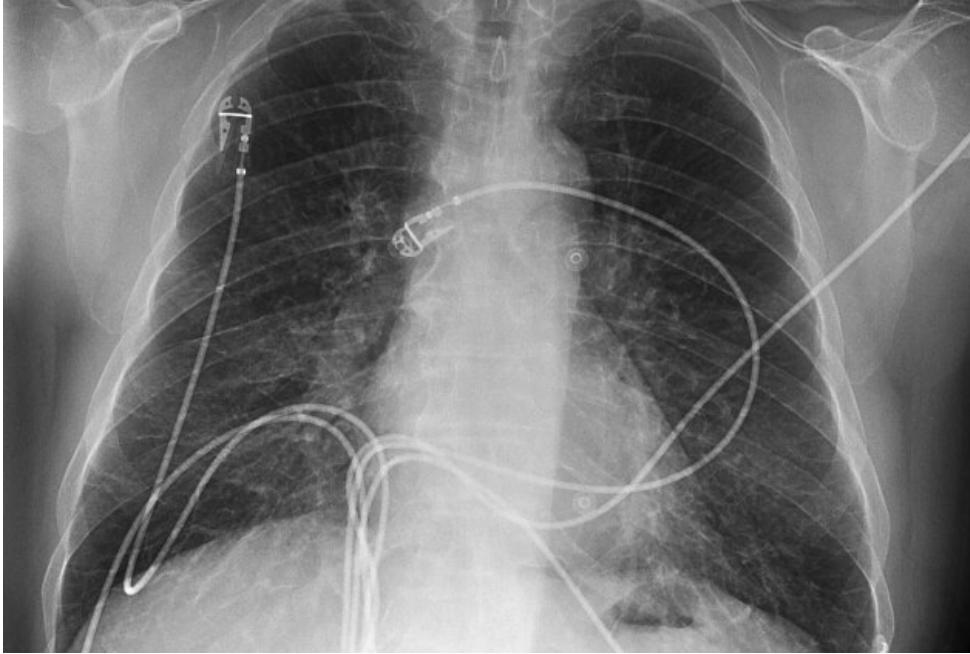
- Hypotension
- Cool extremities
- Poor urine output (< 0.5 mL/kg/hr)



<https://my.clevelandclinic.org/health/diseases/17069-heart-failure-understanding-heart-failure>

Congestion

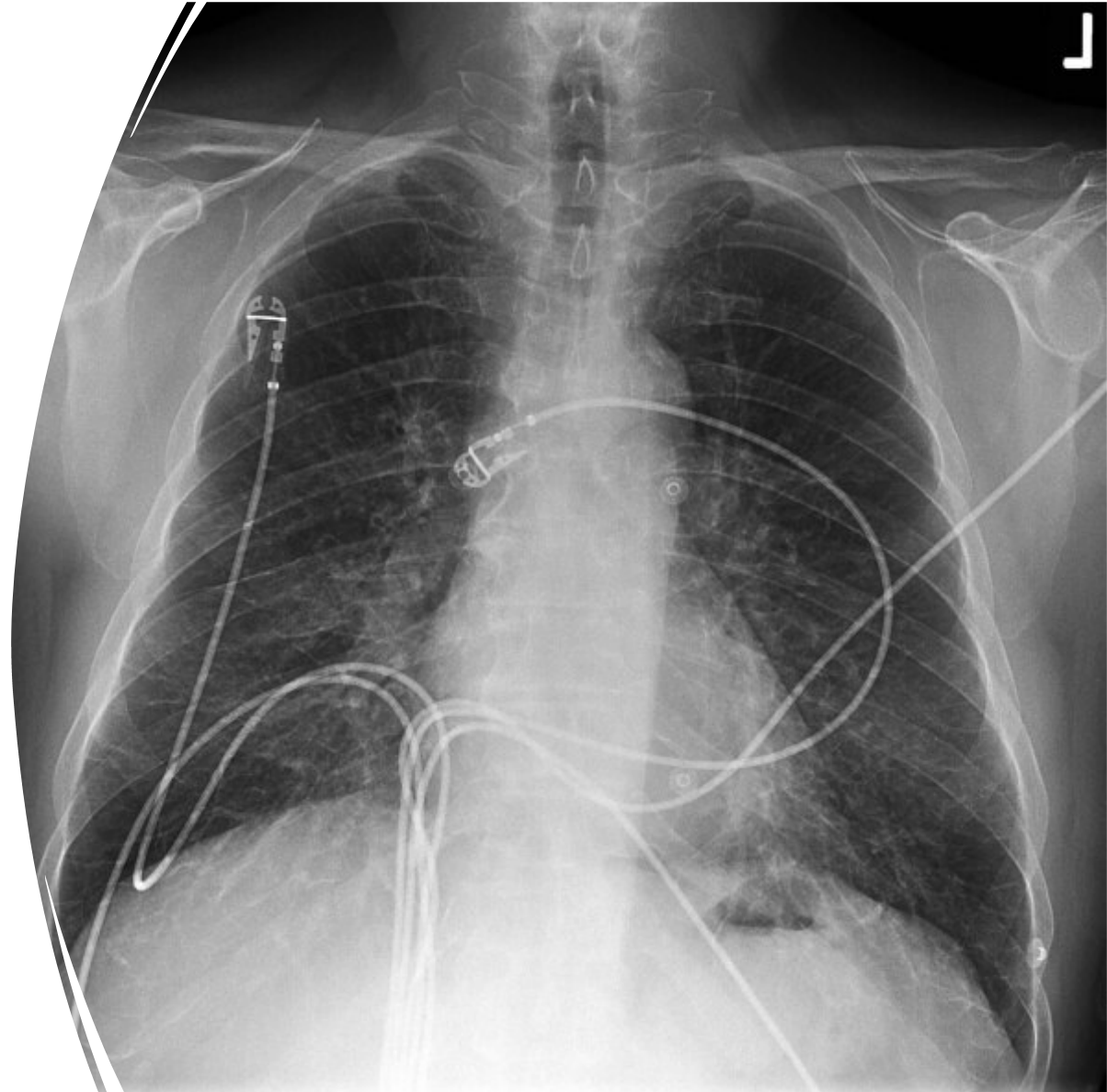
- Orthopnea
- Elevated JVP
- Lower extremity edema
- Hepatojugular reflux
- Ascites
- Loud P2 heart sound
- Rales +/-



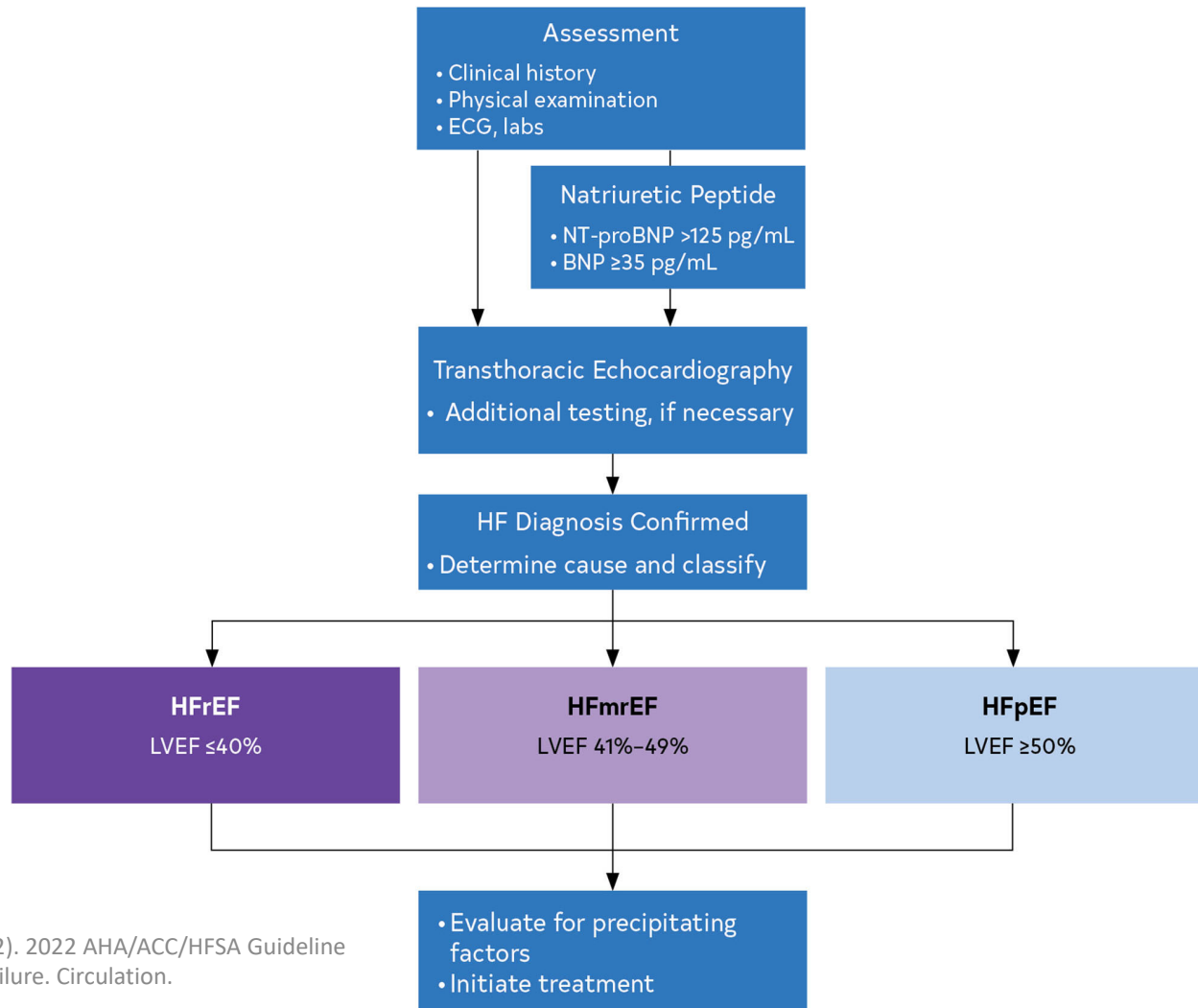
Worsening Congestion

Acute or Not

- BNP and proBNP help guide this diagnosis
 - Obese patients have lower levels
 - Renal patient have higher levels
- Pulmonary Congestion
 - Chest radiography



Diagnostic Algorithm for Patients With Suspected HF



Heidenreich, P. A. et al. (2022). 2022 AHA/ACC/HFSA Guideline for Heart Failure. Circulation.

Diuresis

Start with IV agent

If patient is diuretic naïve (new HF diagnosis)
start with 40 mg IV Lasix

Measurement of I/O absolutely necessary for
response evaluation

Strict fluid intake < 2L / day, may start with 1.5 L

< 2g Na per day

MONITOR ELECTROLYTES

OPTIMIZE –HF revealed Reduced 30d all cause mortality and hospitalization

DOSE study

- Prospective, randomized, double-blind, controlled trial with a 2-by-2 factorial design
- One group received home diuretic dose (low dose) and other group received 2.5 times home does (high dose)
- Diuretic dosing by bolus Q 12 hours VS continuous infusion (same total dose) for 72 hours
- All participants had known diagnosis and heart failure and had been on diuretic therapy in outpatient setting for > 1 month
- After 72 hours symptoms were better in high dose group with a mildly elevation in Creatinine

Furosemide

- Loop Diuretic that increases the excretion of sodium and water by inhibiting reabsorption in the proximal and distal tubules, and the loop of Henle
- In diuretic naïve patients use 40 mg IV
- If poor response, double the dose

Bumetanide

- Bumetanide is more potent because it is more bioavailable; not protein bound
- 40 x more potent than furosemide

Thiazide Diuretics

- If not achieving acceptable diuresis
- Consider adding metolazone 30 minutes prior to administration of diuretics

Do you need Cardiology?

Is patient is refractory to current medical management?

- not responding to diuresis
- diuresing without improvement in O2 status

Consider Aquapheresis. Need to be transferred to cardiology service at UK Chandler for mgmt.

They will benefit from cardiology consult if they potentially need device therapy

*Ultimately may need LVAD or heart transplant

I	Need for inotropes
N	New York Heart Association Class IV
E	Worsening end-organ dysfunction
E	Ejection fraction <20%
D	Defibrillator shocks for ventricular arrhythmias
H	Recurrent HF hospitalizations
E	Escalating diuretic dose
L	Low blood pressure
P	Progressive intolerance of GDMT

CONSIDER MNEMONIC
“I NEED HELP”
TO RECOGNIZE PATIENTS
WITH
ADVANCED HEART
FAILURE

Recommendations for Maintenance or Optimization of GDMT during hospitalization

- In patients with HFrEF preexisting GDMT should be continued to improve outcomes, unless contraindicated
- Mild decrease of renal function and asymptomatic reduction of blood pressure (SBP>85) are not reasons to routinely discontinue GDMT and diuresis
- In patients with HFrEF, not previously on GDMT, it should be initiated during hospitalization
- If discontinuation of GDMT is necessary during admission, it should be restarted ASAP

GAME CHANGERS

The SGLT2i were known to be beneficial for patients with HFrEF

- EMPEROR-Reduced (2020)
- DAPA-HF (2019)
 - HFrEF patients who received SGLT2i showed decreased rate of CV death or worsening HF

2 recent studies show they are also beneficial in patients with mrEF and pEF


EMPEROR – preserved (2021)

- 12, 251 participants
- LVEF > 40%
- Empagliflozin 10 mg daily vs placebo
- 12% reduction in CV death
- Decrease in HF reductions
- Improvement in symptom burden
- Improved clinical events even in those with LVEF > 60%
- The HFmrEF appeared to have the greatest benefit





DELIVER
(2022)

- 6,263 adults
 - HFmrEF and HFpEF
 - 10 mg dapagliflozin or placebo
 - At 2.3 years there was reduction in HF hospitalization and CVD mortality in dapagliflozin arm
- 



<https://www.pexels.com/collections/stay-healthy-jmm4dr7/>

GDMT Goal Directed Medical Therapy



SGLT2i

(Class 2a recommendation)

- Sodium-glucose cotransporter 2 inhibitors
- MOA – inhibit renal glucose reabsorption
- Originally brought to market as oral DM meds
- Reduce HF events in patients with both reduced and preserved EF

ACEi, ARB and ARNi

RAAS pathway – Renin–Angiotensin–Aldosterone- system

For **HRrEF** and **HFimEF** choose an ARNi (class 2b)
as this has high economic value

For **HFmrEF** choose ARNi (class 2b), ACE (class 2b)
or ARB (class 2b)

For **HFpEF** choose ARB (class 2b) or ARNi (class 2b)



Mineralocorticoid Receptor Antagonists
(Class 2b)

Eplerenone & Spironolactone

Starting dose is 25 mg orally daily



- RALES randomized highly symptomatic patients with LVEF $\leq 35\%$
- EPHESUS randomized patients post-MI with LVEF $\leq 40\%$
- EMPHASIS-HF randomized patients with mild symptoms and LVEF $\leq 30\%$

Suggest a benefit of MRA across the spectrum of HFrEF, inclusive of a wide range of etiologies and disease severities.



Beta Blocker (Class 2b)

For patients with EF < 40% who can tolerate

Metoprolol Succinate, Carvedilol and Bisoprolol

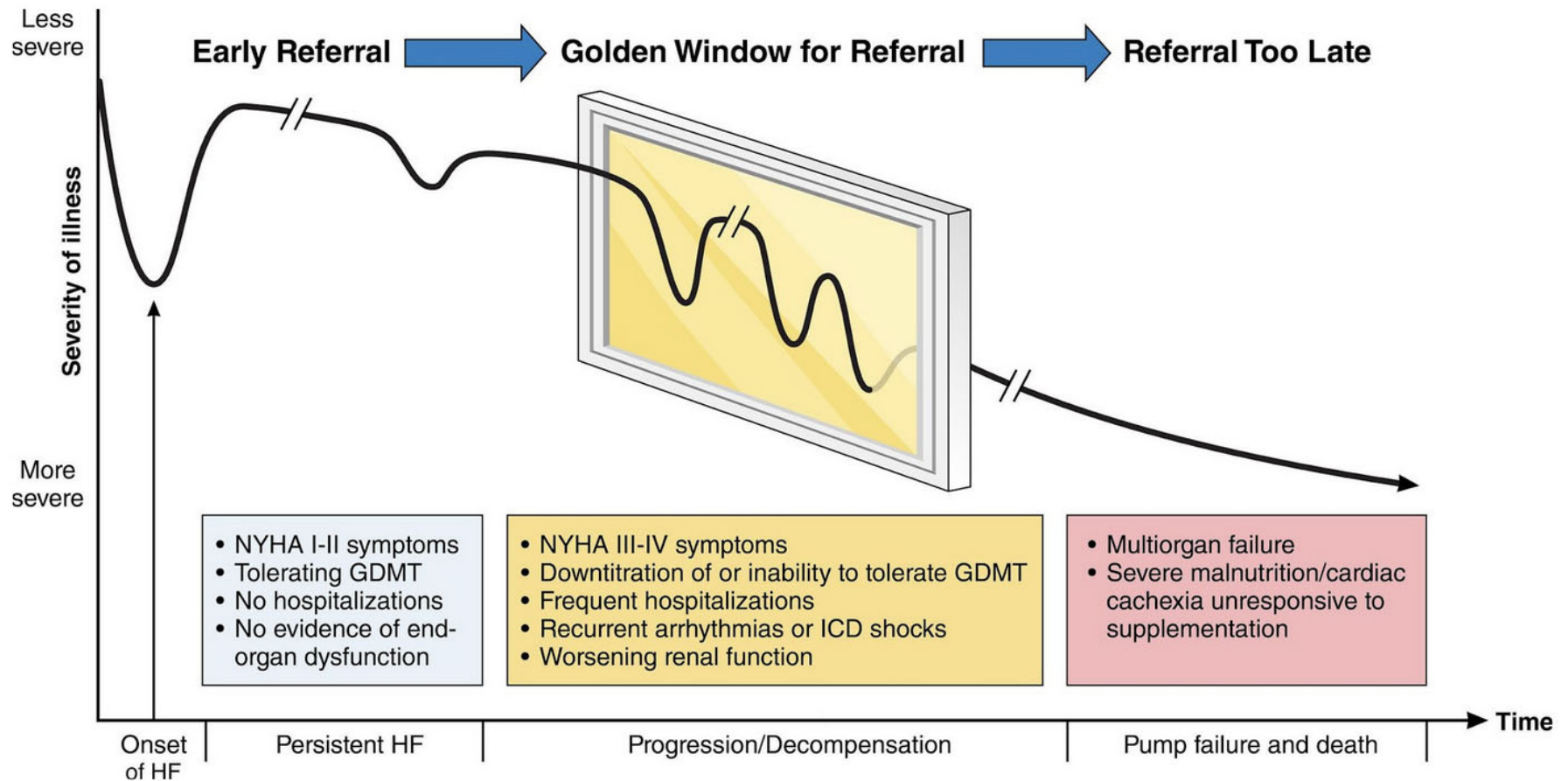
Up titrate to goal HR > 60

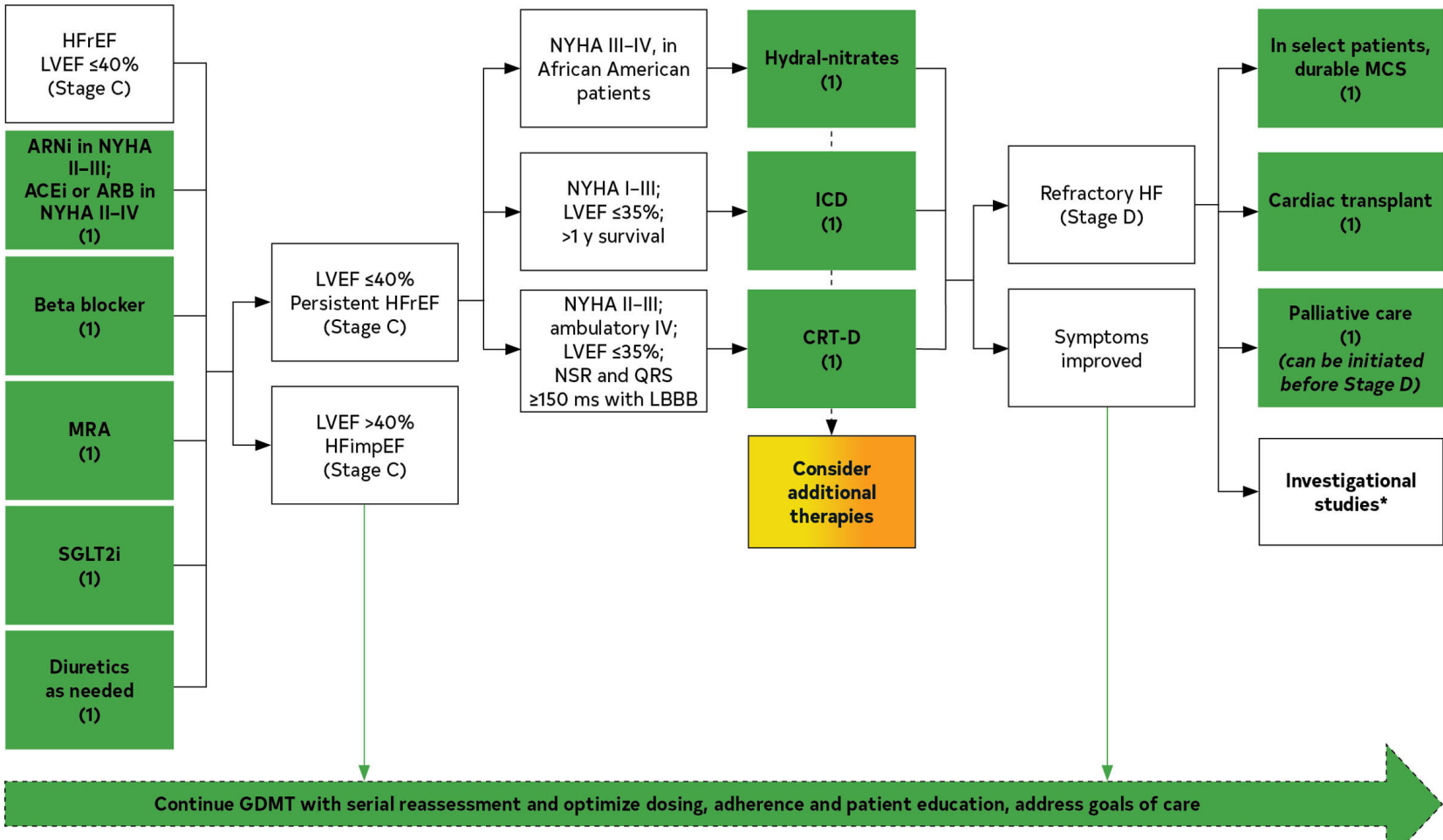
DO NOT HOLD BB UNLESS CLINICALLY INDICATED!

Ready for Discharge ?

- Optimize GDMT – patient should be started on all appropriate therapies prior to discharge
- Education about weight monitoring is essential
- Consider a nutrition consult for HF diet education
- Follow up with PCP or cardiology to address recent heart failure related admission within 7 days was associated with reduced rates of admission
- Consider a referral to HF clinic, especially if patient EF <40%

Heart Failure patients Need a Cardiology referral, but when?





Social Determinants Of Health

BARRIERS

Access

Transportation issues

Financial limitations

Medical literacy

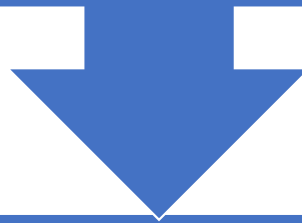
Food insecurity/access

Unstable housing



Addressing Vulnerable Populations

Evidence of health disparities should be monitored and addressed at all levels of the health care system



Assess and address SDOH and disparities

Nurse Navigators to follow up after discharge

Financial assistance and prescription drug cost coverage programs

Lifestyle and behavioral factors

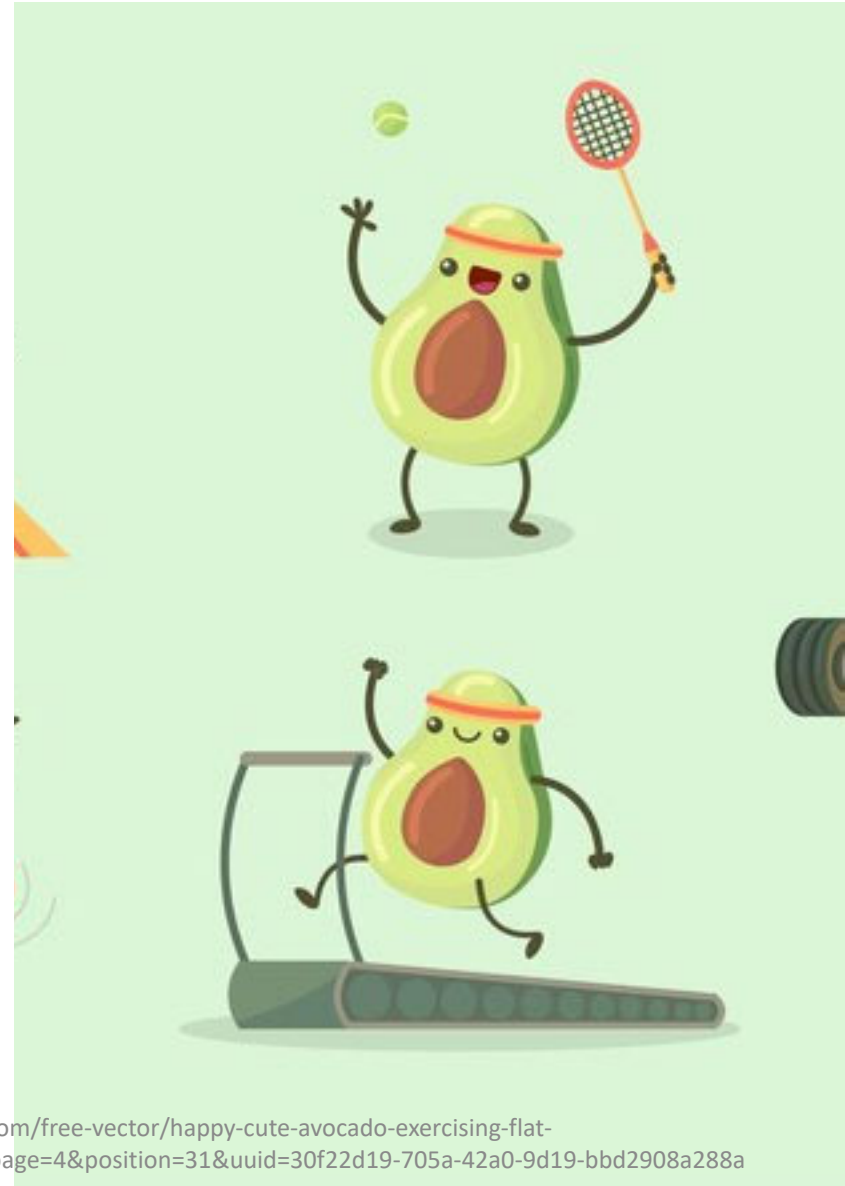
Primary Prevention

Healthy diet

Maintaining a normal weight

Regular physical activity

May not be enough...



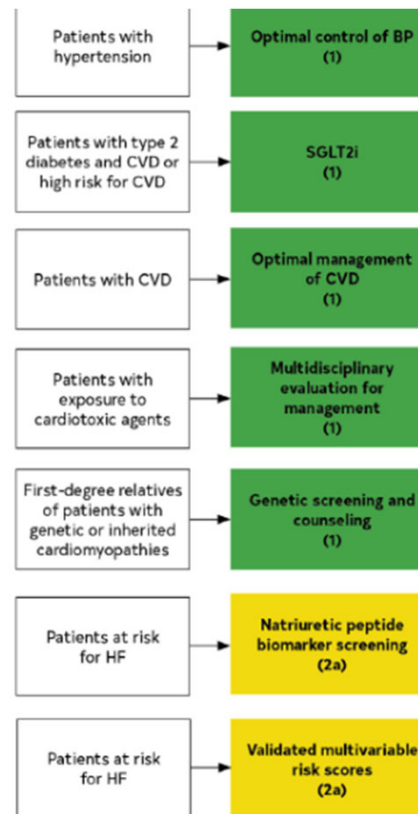


Pearl

- 52 year old woman
 - High blood pressure
 - Diabetes
-

AT-RISK FOR HEART FAILURE: Stage A

Patients at risk due to comorbidities but without signs/symptoms of heart failure and without structural/functional heart abnormalities or abnormal biomarkers





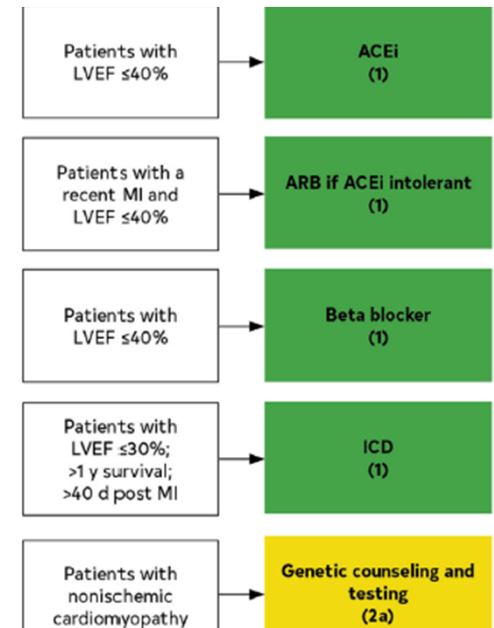
Ruby

- 67 year old female
 - Suffered a heart attack earlier this year
 - Most recent EF is 39%
-

PRE-HEART FAILURE: Stage B

No current or previous symptoms of heart failure but evidence of:

structural heart disease, increased filling pressures, risk factors AND increased natriuretic peptide levels OR cardiac tamponade



THANK YOU!

- ✓ The new definitions of HF
- ✓ The 2022 update focused on relevant important points/updates for hospitalists
- ✓ Hospital management of ADHF
- ✓ GDMT
- ✓ Primary Prevention
- ✓ When to refer to cardiology
- ✓ SDOH and tools to tackle barriers

References

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