

Ref and Pef: The Not So Identical Twins of Heart Failure

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Disclosures

I have no disclosures relevant to this presentation.

No off-label, experimental, or investigational use of drugs or devices will be discussed in this presentation.

Topics to Cover

- Review mainline pharmacological treatment for patients with heart failure with reduced ejection fraction (HFrEF).
- Discuss rationale to consider use of the two new classes of medications for pts with HFrEF.
- Discuss challenges and barriers to up-titration of meds that are indicated for this pt population.
- Discuss situations that would trigger a referral to a HF specialist.
- Discuss importance of shared decision making with pts with advanced HF, esp when considering new classes of meds

Definition: Heart failure with Reduced Ejection Fraction

- Clinical diagnosis of heart failure and a left ventricular ejection fraction of 40% or less
- Abbreviated as **HFrEF**

Yancy CW, Januzzi JL Jr, Allen LA, Butler J, Davis LL, & et al 2017 ACC expert consensus decision pathway for optimization of HF treatment: answers to 10 pivotal issues about HF with reduced EF: a report of the ACC Task Force on Clinical Expert Consensus Decision Pathways. *J Am Coll Cardiol* 2018;71(2): 201-230.

Established Therapies for Chronic HF

- Angiotensin Converting Enzyme inhibitors (ACE-Is)
- Angiotensin receptor blockers (ARBs)
Angiotensin receptor neprilysin inhibitor (ARNIs)
- Beta-blockers (only the ones approved)
- Loop diuretics
- Aldosterone antagonists
- Hydralazine/isosorbide dinitrate (HYD/ISDN)
- All (*except* loop diuretics) have been shown to improve symptoms, reduce hospitalization, and/or help patients live longer.

Guideline Directed Medical Therapy (GDMT) for Chronic Heart Failure

- Three new medications for patients with HFrEF*
 - Angiotensin receptor neprilysin inhibitor (ARNI) (sacubitril/valsartan)
 - Sinoatrial node modulator (ivabradine)
 - Sodium-glucose Cotransporter-2 (SGLT-2) inhibitors
- We will focus on HF with reduced ejection fraction (HFrEF)
- We will also discuss one med for preserved ejection fraction (HFpEF)

2017 ACC Expert Consensus Decision Pathway for Optimization of Heart Failure Treatment

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EXPERT CONSENSUS DECISION PATHWAY

2017 ACC Expert Consensus Decision Pathway for Optimization of Heart Failure Treatment: Answers to 10 Pivotal Issues About Heart Failure With Reduced Ejection Fraction

A Report of the American College of Cardiology Task Force on Expert Consensus Decision Pathways

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2021 Update to the 2017 ACC Expert Consensus Decision Pathway for Optimization of Heart Failure Treatment



Maddox TM, Januzzi JL Jr, Allen LA, Breathett K, Butler J, **Davis LL**, et al. 2021 Update to the 2017 ACC Expert Consensus Decision Pathway for Optimization of Heart Failure Treatment: Answers to 10 Pivotal Issues About Heart Failure With Reduced Ejection Fraction: A Report of the American College of Cardiology Solution Set Oversight Committee. *J Am Coll Cardiol.* 2021;77(6):772-810.

Contents: 2021 ECDP Update

- Starting, adding, or switching to GDMT for patients with HFrEF
- Achieving optimal therapy (with additional assessments)
- Referring the patient to a HF specialist
- Addressing challenges of care coordination
- Improving adherence
- Managing special patient populations/cohorts
- Managing cost and access to care
- Managing complexity of HF management
- Integrating palliative care and transition to hospice care

Translated Into Clinical Apps

TreatHF App



This App helps clinicians confirm which therapies are suggested for their symptomatic heart failure patients with reduced ejection fraction (HFrEF) and provides guidance on the use of each therapy.

- Enter patient indications
- Review individualized next steps for medical therapy
- Email or print a summary of the next steps
- Reference detailed information on:
 - Initiation, titration, and monitoring of each medication
 - Guidance for optimizing your overall medication strategy



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Treatment Algorithm for Guideline-Directed Medical Therapy Including Novel Therapies

HFrEF Stage C
(symptomatic)

ACE-I/ARB/ARNI (choose one) +
Evidence-based beta-blocker +
(With diuretic as needed)

These options (no particular
order)

If eGFR \geq 30,
Creat \leq 2.5 in males or
 \leq 2 in females,
K⁺ \leq 5.0,
NYHA II-IV
Add aldosterone
antagonist

If meeting eGFR
criteria,
NYHA II-IV
Add SGLT2
inhibitor

Persistent
volume
overload
NYHA II-IV
Titrate diuretics

Persistent
symptoms
Black patients, on
other therapies,*
NYHA III-IV
Add Hydralazine +
Isosorbide dinitrate

Patients with
resting HR \geq
70/min, on max
tolerated beta-
blocker, in sinus
rhythm,
NYHA II-III
Add Ivabradine

Beta Blockers

Medication	Starting Dose	Target Dose
Bisoprolol	1.25 mg daily	10 mg daily
Carvedilol	3.125 mg twice daily	25 mg twice daily if weight < 85 kg; Otherwise 50 mg twice daily
Metoprolol succinate (XL)	12.5 – 25 mg daily	200 mg daily

ACE Inhibitors (some examples)

Medication	Starting Dose	Target Dose
Captopril	6.25 mg tid	50 mg tid
Enalapril	2.5 mg bid	10-20 mg bid
Lisinopril	2.5 – 5 mg daily	20-40 mg daily
Ramipril	1.25 mg daily	10 mg daily

ARBs (some examples)

Medication	Starting Dose	Target Dose
Candesartan	4-8 mg daily	32 mg daily
Losartan	25-50 mg daily	150 mg daily
Valsartan	40 mg bid	160 mg bid

Aldosterone Antagonists

Medication	Starting Dose	Target Dose
Eplerenone	25 mg daily	50 mg daily
Spironolactone	12.5-25 mg daily	25-50 mg daily

- **New recommendation:** Aldosterone antagonists may reduce hospitalizations in some patients with HFpEF.
- **Important:** Monitor kidney function and potassium within 2-3 days, again at 7 days; then check monthly X 3 months; then every 3 months thereafter
- Clinical status for some may warrant closer monitoring

Vasodilators

Medication	Starting Dose	Target Dose
Hydralazine	25 mg tid	75 mg tid
Isosorbide DN	20 mg tid	40 mg tid
Fixed dose combo	20mg/3.75 mg (one tab) tid	2 tabs tid

- Titrate up every 2 weeks until maximum tolerated or at target dose
- Monitor BP after starting med and during titration

Sacubitril/Valsartan

Indications:

- HFrEF (EF \leq 40%)
- NYHA Class II-IV HF
- Start in conjunction with background of GDMT for HF (instead of ACEI or ARB)

• Caution:

- Renal impairment (*see specifics)
- Hepatic impairment (*see specifics)
- Renal artery stenosis
- Systolic BP < 100 mm Hg
- Volume depletion

Contraindications

- Within 36 hours of ACE-I use
- History of angioedema with or without ACE-I or ARB
- Pregnancy
- Lactation
- Severe liver impairment (Child-Pugh C)
- Concomitant aliskiren use in pts with diabetes
- Known hypersensitivity to either ARBs or ARNIs

Sacubitril/Valsartan (ARNI)

Starting dose: 24/26 mg – 49/51 mg twice daily

- When to start with lower dose (24/26 mg daily)
 - New to RAAS blockade (never been in ACE-I, ARB, or ARNI)
 - On a low-medium dose of ACE-I or ARB
 - If pt taking equivalent of ≤ 10 mg enalapril daily
 - If pt taking equivalent of ≤ 160 mg valsartan
 - Severe renal impairment (eGFR < 30 mL/min/1.73m²)
 - Moderate hepatic impairment (Child-Pugh Class B)
 - Age ≥ 75 years
- When to start with higher dose

Target dose: 97/103 mg twice daily

Conversion of ACE-I to ARNI (*Sacubitril/valsartan)

- Need 36-hour washout period of ACE-I to avoid angioedema
 - Would not need to do this if on an ARB
- Ensure the patient has an adequate BP (contraindicated if symptomatic hypotension or decompensated)
- eGFR <30 mL/min/1.73 m²
- Starting dose
 - If taking ≤ 10 mg enalapril (or equivalent) start with 24/26 mg twice daily
- Reassess in 2-4 weeks
 - If tolerates, up-titrate to 97/103 mg twice daily
- Ongoing monitoring (BP, electrolytes/kidney function after initiation and each up titration)

Ivabradine

Indications:

- HFrEF (EF \leq 35%)
- On maximum tolerated doses of beta-blocker
- Sinus rhythm with resting HR of \geq 70 beats per minute
- NYHA Class II-III HF

Caution:

- Sinus node disease
- Cardiac conduction defects
- Prolonged QT interval

Contraindications

- HFpEF
- Presence of angina with normal EF
- Hypersensitivity
- Severe hepatic impairment (Child-Pugh C)
- Acute decompensated HF
- BP \leq 90/50
- Sick sinus syndrome without pacemaker
- Sinoatrial node block
- 2nd or 3rd degree ACD block w/out pacer
- Resting heart rate $<$ 60/min
- Persistent AF or Aflutter
- Atrial pacemaker dependence

Ivabradine

Starting dose: 2.5 – 5 mg twice daily

- Lower dose if hx of conduction defects or Age \geq 75

Target dose: titrate to heart rate 50-60 beats/per/minute.

Maximum dose: 7.5 mg twice daily

What's New?

- For pts with newly diagnosed (Stage C) HFrEF a, a beta-blocker and a RAAS blocker (ACEI/ARB/ARNI) **should be started in any order.**
- Sodium-glucose cotransporter-2 (SGLT-2) inhibitors should also be considered for HFrEF with NYHA class II-IV pts.

Maddox TM, Januzzi JL Jr, Allen LA, Breathett K, Butler J, Davis LL, et al. 2021 Update to the 2017 ACC Expert Consensus Decision Pathway for Optimization of Heart Failure Treatment: Answers to 10 Pivotal Issues About Heart Failure With Reduced Ejection Fraction: A Report of the American College of Cardiology Solution Set Oversight Committee. *J Am Coll Cardiol.* 2021 Jan 4:S0735-1097(20)37867-0. doi: 10.1016/j.jacc.2020.11.022.

Sodium-glucose Cotransporter-2 (SGLT-2) inhibitors

- Benefits: reduce hospitalization and death
- Indications
 - HFrEF (EF \leq 40%) with or without diabetes
 - NYHA Class II-IV
 - Given with background GDMT
- Examples
 - Dapagliflozin (“dapa”) 10 mg daily
 - Empagliflozin (“empa”) 10 mg daily

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Who Should **Not** Get SGLT-2 Inhibitors

Contraindications

- Type I diabetes (due to increased risk of diabetic ketoacidosis)
- Known hypersensitivity to drug
- Lactation (no data)
- On dialysis

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Cautious Use for HF: SGLT2-inhibitors

- Low GFR: **dapa** eGFR<30 or **empa** eGFR<20 mL/min/1.73 m²
- Pregnancy
- Risk of mycotic genital infections
- May contribute to volume depletion (consider altering diuretic dose)
- Ketoacidosis in pts w/diabetes
 - Temporary d/c before scheduled surgery is to avoid risk
 - Assess pts if s/s of metabolic acidosis, regardless of blood glucose level
- Acute kidney injury/impaired renal function (consider temporarily d/c if decreased fluid intake or fluid losses)
- Urosepsis & pyelonephritis (eval pt for s/s of UTI & treat promptly)
- Necrotizing fasciitis of the perineum (rare, serious side effect)

Pearls for Starting Therapy

For new patients:

- Starting ACE-I, ARBS, or ARNIs = often better tolerated if started when a little “wet”
- Starting beta-blockers = often better tolerated if started when a little “dry” (as long as heart rate is adequate)
- Could start both (low doses)

What's the Role of Digoxin?

- Mostly used for rate control in setting of Afib in those with a low blood pressure
- No survival benefit (data with HFrEF very old)
- When to start digoxin
- Dosing is tricky, esp in patients with kidney disease

HF with Preserved Ejection Fraction

Aldosterone receptor antagonists *might be considered* to decrease hospitalization in appropriately selected patients with HFpEF:

- EF \geq 45%
- Elevated BNP levels or HF admission within 1 year
- Estimated glomerular filtration rate $>$ 30 mL/min, creatinine clearance $<$ 2.5 mg/dL, & potassium $<$ 5.0mEq/L).

Triggers for HF Patient Referral to HF Program (or Specialist)

I Need Help:

I: IV inotropes

N: NYHA IIIB/IV or persistently elevated natriuretic peptides

E: End-organ dysfunction

E: Ejection fraction $\leq 35\%$

D: Defibrillator shocks

H: Hospitalizations $>$ once

E: Edema despite escalating diuretics

L: Low BP, high heart rate

P: Prognostic medication: Progressive intolerance or down titration of CGMT

Other situations:

- New onset HF
- Chronic HF with high risk features
- To assist with managing guideline directed medical therapy (GDMT)
- Persistently reduced LVEF ($\leq 35\%$) despite GDMT for ≥ 3 months
- Need 2nd opinion
- Annual review for established HF patients with advanced disease
- Participation in a clinical trial

Tools For Shared Decision Making

Free tools on the American College of Cardiology website:

- <https://www.cardiosmart.org/topics/decisions/shared-decisions>

For ACE-I vs ARB vs ARNI:

- <https://www.cardiosmart.org/topics/heart-failure/treatment/choosing-heart-failure-drugs>

For devices (ICDs, LVADs, etc):

- <https://www.cardiosmart.org/topics/heart-failure/treatment/devices>

Other Resources Available for Free

<https://www.cardiosmart.org/topics/heart-failure>

My HF Action Plan (helps pts & their care team talk through things and make informed decisions to manage their condition)

- <https://www.cardiosmart.org/topics/heart-failure/assets/action-plan/my-action-plan-for-heart-failure>

Clinician How-To Tools

- <https://www.acc.org/tools-and-practice-support/quality-programs/succeed-in-managing-heart-failure-initiative>

New ACC Expert Consensus Decision Pathway for Those Hospitalized with HF: Published 9/13/19 online ahead of print

Focus on course of HF admission

- 1st ED visit, hosp admission, trajectory check, transition to oral therapies, discharge, & 1st discharge contact followed by 1st discharge visit

Several algorithms, tables, worksheets

Stresses communication:

- Among team members, esp surrounding hospital discharge

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EXPERT CONSENSUS DECISION PATHWAY

2019 ACC Expert Consensus Decision Pathway on Risk Assessment, Management, and Clinical Trajectory of Patients Hospitalized With Heart Failure

A Report of the American College of Cardiology Solution Set Oversight Committee

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Diuretic Dosing

Class	Drug	Usual Inpatient Dosing* (Maximum†)	Usual Outpatient Dosing (Maximum†)
Loop diuretics	Bumetanide	0.5–4 mg/hour IV once to 3 times daily (5 mg/dose) <i>Or</i> 0.5–2 mg/hour IV infusion (4 mg/hour)	0.5–2 mg orally once to twice daily (10 mg/day)
	Furosemide	40–160 mg IV once to 3 times daily (200 mg/dose) <i>Or</i> 5–20 mg/hour IV infusion (40 mg/hour)	20–80 mg orally once to twice daily (600 mg/day)
	Torsemide	N/A‡	10–40 mg orally once daily (200 mg/day)
Thiazide-type diuretics	Chlorothiazide	0.5–1 g IV once to twice daily (2 g/day)	N/A
	Hydrochlorothiazide	25–50 mg orally once to twice daily (100 mg/day)	25–50 mg orally once daily (100 mg/day)
	Chlorthalidone	12.5–25 mg orally once to twice daily (100 mg/day)	25–50 mg orally once daily (100 mg/day)
	Metolazone	2.5–5 mg orally once to twice daily (20 mg/day)	2.5–5 mg orally once daily (20 mg/day)

For pts receiving loop diuretics prior to admission: oral dose should be changed to IV dose of 1–2.5 X home dose.

FIGURE 11 Model Focused Discharge Handoff

FOCUSED DISCHARGE HANDOFF

Name _____ Age _____ MRN _____ Date of Discharge / / Days in hospital _____

HF TYPE: HFwEF HFwPEF Mid-range HFwEF with Impaired EF HF ETIOLOGY: Ischemic Non-ischemic Infiltrative Other _____

Last LVEF _____ Hospital Triggers _____

Arrhythmia history AF VT OTHER _____ Device Type _____

CONDITION AT DISCHARGE:

D/C BP: Sitting / Standing / HR_Rhythm _____ Sinus AFB paced sinus paced AFB freq PVCs freq PACs Congestion at D/C? Yes No

Edema (0-4+) _____ JVP _____ Orthopnea Yes No Rales None 1/4 1/2 wheezes pleff Ascites Yes No Liver _____ cm

Weight at D/C _____ lbs Admission weight _____ lbs Est target weight _____ lbs if still wet, limited by _____

Dominant right heart failure Renal failure Hypotension Excessive fluid in hospital Frequent readmission pattern Other _____

Biomarkers: Admit BNP or NT proBNP _____ Troponin _____ Discharge BNP (if known) _____ or NT proBNP _____

Kidney Function: Discharge BUN/Cr _____ Worst in hospital _____ Baseline Cr (if known) _____

Comorbidities: _____

Psychosocial Factors: _____

Other hospital events: Code Sepsis Dialysis Intubation IV inotropes used? Yes No Type: _____

Code Status: Full code Full code but recent discussions DNR/DNI DNI only Needs discussion _____

DISCHARGE HF MEDICATIONS:

DIURETIC: Loop type _____ Dose _____ mg/day. Metolazone _____ mgs _____ (frequency or prn).

Triggers for rescue dose: if _____ lbs up, or _____ (sentinel symptoms)

Rescue dose _____ orally, and / or metolazone _____ mg for _____ days before recheck

In hospital effective loop dose _____ mgs IV daily BID TID drip at _____ mg/hr Metolazone used? Yes No

K+ replacement _____ mEq / day _____ Plan for K+ with rescue dose? Yes No

GUIDELINE DIRECTED MEDICAL THERAPY (For history EF < 40 only):

RAS meds: ACEI _____ mg/day ARB _____ mg/day ARNI _____ mg/day Dose de crease in hospital? Yes No

If none or dose decrease, why? Hypotension orthostasis/dizzy worsening renal fx hyperkalemia angioedema cough Other _____

→ Is there a PLAN for outpatient increase or initiation? Yes No

Beta blocker: _____ mg/day Dose de crease in hospital? Yes No

If not, or dose decrease, reason? Hypotension bradycardia worsening renal function hyperkalemia fatigue Other _____

→ Is there a PLAN for outpatient increase or initiation? Yes No

Spirolactone or eplerenone Yes No if not, why Hypotension worsening renal function hyperkalemia

Other HF meds: Digoxin started continued stopped Ivabradine started continued stopped

Hydral/iso started continued stopped

Anticoagulation for AF DVT/PE Mech valve thrombolin LV thrombus with Warfarin Apixaban Rivaroxaban Other DOAC

Antiplatelet for ACS PCI CAD stroke/TIA with ASA dipyridol ticagrelor prasugrel Any hx bleeding? Yes No

Antiarrhythmic medications Amiodarone Dofetilide Sotalol Mexiletine Other _____

See patient discharge document and full discharge summary for complete med list

FOLLOW-UP: Discharge follow-up team _____, Appointment date and time _____

Home Health referrals (visiting nurses, PT, home infusion) _____

Post-discharge labs: Will be drawn at: _____ Results sent to: _____

HF medication refills to _____

For worsening heart failure, contact _____ Phone Number _____

For non-cardiac issues, contact _____ Phone Number _____

Rhythm device follow-up _____

Other care providers _____

Is additional support needed for optimal care? _____

FIGURE 12 Checklist for Communication to Continuing Care Providers

COMMUNICATION TO CONTINUING CARE PROVIDERS

HOSPITAL COURSE

- Reason for admission
- Sentinel symptoms
- Congestion status
 - Admission, discharge, and target weight
 - Admission and discharge kidney function
 - Diuretic dosing
 - Rescue dosing
- Unexpected events

PLANNED THERAPIES AND MONITORING

- Plan for initiation, titration, and optimization of GDMT
 - ACE/ARB
 - Beta blockers
 - Aldosterone antagonists
 - ARNI
 - Ivabradine
 - Hydralazine/isosorbide
- Plan to monitor electrolytes and kidney function
- Follow-up for pending or planned diagnostic tests
- Plan for EP consult if sudden death risk or potential candidate for device therapy
- Recommendations for when to assess response to therapy
- Pneumovax and Influenza vaccination

FOLLOW-UP RELATED TO COMORBIDITIES

- Kidney function
- Diabetes
- Sleep-disordered breathing
- Depression
- Anemia
- Other _____

PSYCHOSOCIAL ISSUES RELEVANT TO ONGOING ADHERENCE

CONTINGENCY PLAN

- Diagnostic uncertainty
- What could go wrong and expected action plan

ADVANCE CARE PLANNING OR GOALS OF CARE DISCUSSIONS

FIGURE 13 Checklist for Follow-Up Phone Call

CHECKLIST FOR FOLLOW-UP PHONE CALL WITHIN 48-72 HOURS

INTRODUCTION: My name is _____. I am calling from (either provider's office or hospital, depending on care coordination structure) to see how you are feeling and after your recent discharge from the hospital.

TOPIC	VITAL QUESTION	CAUSE FOR IMMEDIATE CONCERN	TEACHING POINTS TO BE COVERED IN CALL / CLINIC USING TEACH BACK
Symptoms • Sentinel symptom from hospitalization • Shortness of breath • Orthopnea • Edema	How is _____? <input type="checkbox"/> Same <input type="checkbox"/> Better <input type="checkbox"/> worse than at discharge	Alert If WORSE	Do you know what symptoms you should be paying attention to?
Dizziness	Are you having trouble with dizziness? <input type="checkbox"/> Yes <input type="checkbox"/> No Is it just when you first stand up or does it last longer? _____	FREQUENT DIZZINESS	Review dizziness as potential symptom of concern
Daily Weights	Are you weighing yourself daily? <input type="checkbox"/> Yes <input type="checkbox"/> No If not, do you have a scale? <input type="checkbox"/> Yes <input type="checkbox"/> No What was your first weight at home after discharge? _____ What is your weight now? _____	ALERT if no weights or if weight increase > trigger	Importance of weights as short-term indication of fluid balance. Review diuretic plan from discharge. Do you have a plan for what to do if your weight increases?
Medications (Refer to discharge list)	Do you have these medications prescribed at discharge? <input type="checkbox"/> Yes <input type="checkbox"/> No Do you know how to take them? <input type="checkbox"/> Yes <input type="checkbox"/> No Do you think you are having side effects from any of them? _____	ALERT if Not obtained, Or not taking correctly	Types and purposes of HF medications
Salt restriction	Are you watching your salt intake? <input type="checkbox"/> Yes <input type="checkbox"/> No What is your daily limit? _____ What are you doing to make sure you don't eat too much salt? _____		Review contribution of salt to fluid retention Common high-salt items How to read labels
Fluid restriction (for patients who have one)	Are you keeping track of your fluid intake? <input type="checkbox"/> Yes <input type="checkbox"/> No What is your daily limit? _____ What are you doing to stay within your limit? _____ _____		Review contribution of fluid to symptoms, importance of fluid restriction for fluid balance and how to account for fluids in food as well as beverages. Reassure: this is often not a sign of dehydration in heart failure. Present tricks such as frozen fruit, etc.
Follow-up	When is your follow-up appointment? _____ Do you have a way to get there? _____	NO F/U APPT or no way to get there	
Physical Activity			

Vital questions are listed by topic, with highlights of responses that should raise immediate concerns. Inclusion of teaching points is desirable if time permits.

FIGURE 14 First Post-Discharge Visit Checklist

FIRST POST-DISCHARGE VISIT

<p><input type="checkbox"/> History</p> <ul style="list-style-type: none"> • Discharge summary reviewed. • Etiology of cardiomyopathy identified. • Precipitant of exacerbation identified. • Heart failure compensated? <ul style="list-style-type: none"> - NYHA class. - Weight log reviewed? - Symptoms reviewed? • Important concomitant disease states <ul style="list-style-type: none"> - CKD - Diabetes - Hypertension - COPD - OSA - Others <p><input type="checkbox"/> Physical Exam</p> <ul style="list-style-type: none"> • Vital signs • BMI • Orthostatic blood pressure • Jugular venous distention • Rales +/- • "cold/warm", "wet/dry" profile • S3 present/absent <p><input type="checkbox"/> Diagnostic Testing</p> <ul style="list-style-type: none"> • Basic metabolic panel • Complete blood count • BNP or NT-pro-BNP • Liver function panel (per discretion of clinician) • Iron studies (per discretion of clinician) • High sensitivity troponin, IST2, Gal-3 (per discretion of clinician) • 12 lead ECG • Chest X-Ray (per discretion of clinician) • Review LVEF (___%). If not available, obtain TTE • Followup EF: <ul style="list-style-type: none"> - 40 days post MI - 3 months post NICM • Ischemia evaluation needed? 	<p><input type="checkbox"/> Medications</p> <ul style="list-style-type: none"> • Comprehensive medication reconciliation • Beta-blocker? <ul style="list-style-type: none"> - Dose optimized? • ACEI/ARB/ARNI <ul style="list-style-type: none"> - Dose optimized? - Contra-indication to ARNI? - Symptoms reviewed? • Aldosterone antagonist <ul style="list-style-type: none"> - Dose optimized? • Diuretics? <ul style="list-style-type: none"> - Dose adjustment? • Ivabradine? (Consider initiation if heart rate remains elevated despite beta blocker optimization) <p><input type="checkbox"/> Interventional therapies (if applicable)</p> <ul style="list-style-type: none"> • Revascularization • CRT • ICD • Valvular intervention <p><input type="checkbox"/> Patient education</p> <ul style="list-style-type: none"> • Importance of adherence • Medication education • Dietary education • Activity education • Smoking cessation • Cessation in alcohol consumption • Follow-up appointment scheduled <p><input type="checkbox"/> Consultations</p> <ul style="list-style-type: none"> • Home health services • Cardiac rehab referral • Advanced heart failure clinic referral • Palliative/hospice referral
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ACE-I = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; ARNI = angiotensin receptor-neprilysin inhibitor; CKD = chronic kidney disease; BNP = B-type natriuretic peptide; COPD = chronic obstructive pulmonary disorder; CRT = cardiac resynchronization therapy; ECG = electrocardiogram; ICD = implantable cardioverter-defibrillator; LVEF = left ventricular ejection fraction; MI = myocardial infarction; NICM = nonischemic cardiomyopathy; NT-proBNP = N-terminal pro-B-type natriuretic peptide; OSA = obstructive sleep apnea.

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Questions?

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