HFrEF Treatment

- HFrEF:
  - Initiate Guideline Directed Medical Therapy (GDMT) – 4 mainstays
    - Begin with volume management using aldosterone antagonists w or w/o loop diuretics as needed
    - Beta blockers (metoprolol succinate, carvedilol, bisoprolol), and ARNI/ACEI/ARB for all unless contraindicated
      - Titrate to target dose, even if symptoms are stable/improving
      - Get BP as low as tolerated. HR target 70bpm or less
    - Add SGLT2 inhibitor: Dapagliflozin (Farxiga®), Sotagliflozin (Inpefa®) and Empagliflozin (Jardiance®) are approved for HFrEF . Hold 3d prior to surgery. Only Sotagliflozin (Inpefa®) needs titration and renal concerns. (See HFpEF section).

HFrEF Treatment

For ALL patients:

ACE Inhibitor *or* ARB *or* ARNI

AND Evidence based Beta Blocker

AND Aldosterone Antagonist (CrCl >30 ml/min, K^+ <5)

AND SGLT2 inhibitor

Initiate loop diuretic

(dose prn or daily as clinically indicated)

Titrate ACE/ARB/ARNI, BB, Aldosterone Antagonist to target doses as clinically tolerated

Continue diuretic prn or daily

Follow up symptoms q1-6 months and prn

	Starting Dose	Target Dose
ARNI: **starting dose and timing dependent on current ACE/ARB dose*		
Sacubitril/Valsartan (Entresto®)	24/26mg twice daily	97/103mg twice daily
ACE Inhibitors		
Enalapril	2.5mg twice daily	10mg twice daily
Lisinopril	2.5mg once daily	20-40mg once daily
Captopril	6.25mg three times daily	50mg three times daily
ARBs		
Valsartan (Diovan®)	20-40mg twice daily	160mg twice daily
Candesartan (Atacand®)	4-8mg once daily	32mg once daily
Losartan (Cozaar®)	25mg once daily	50-100mg once daily
Evidence Based Beta Blockers		
Bisoprolol	2.5mg once daily	10mg once daily
Carvedilol (Coreg®)	3.125mg twice daily	25mg twice daily
Metoprolol Succinate (Toprol XL®)	12.5-25mg once daily	200mg once daily
Aldosterone Antagonist		
Spironolactone	12.5-25mg once daily	25-50mg once daily
Eplerenone (Inspra®)	12.5-25mg once daily	25-50mg once daily

HFrEF Subsequent Treatment

If persistent symptoms, continue to add as appropriate (Begin → End)

Add Hydralazine/ISDN (decrease mortality): self-identified African American or contraindication to ACE/ARB/ARNI

Add Ivabradine (Corlanor®) (decrease time to hospitalization): HR >70 on max tolerated BB and in normal sinus rhythm

Consider addition of Digoxin if patient w/ symptoms despite above therapies or if comorbid atrial fibrillation. Use low dose, ensure K^+ and Mg^+ are WNL

Consider Vericiguat (Verquvo®)(decrease CV death & HF hospitalization): eGFR >15 ml/min, EF <45%, contraindicated in pregnancy

HFpEF Treatment

- HFpEF:
  - Start with loop diuretics for volume management. If significant edema despite loop, add aldosterone if eGFR/K+ normal
  - Get BP and HR as low as tolerated – use beta blockers, diltiazem, verapamil (rate – 70bpm is target) as well as ACEI/ARB and consider nitrates, hydralazine
  - Add SGLT2 Inhibitor (note to hold med at least 3d prior to surgery – DKA risk)
    - Empagliflozin (Jardiance®) – FDA approved for all types HF – no titration

      Start 10mg qam as long as eGFR >/= 20.
    - Dapagliflozin (Farxiga®) – FDA approved for all types HF – no titration

      Start 10mg qam. Avoid initiation of treatment if eGFR <25. May stay on if eGFR drops <25
    - Sotagliflozin (Inpefa®) – FDA approved (05/2023) – HF titration

      Start 200mg qd, increase after 2wk. eGFR must be > 25 to start, do not use if < 15

Global HF Treatment Overview

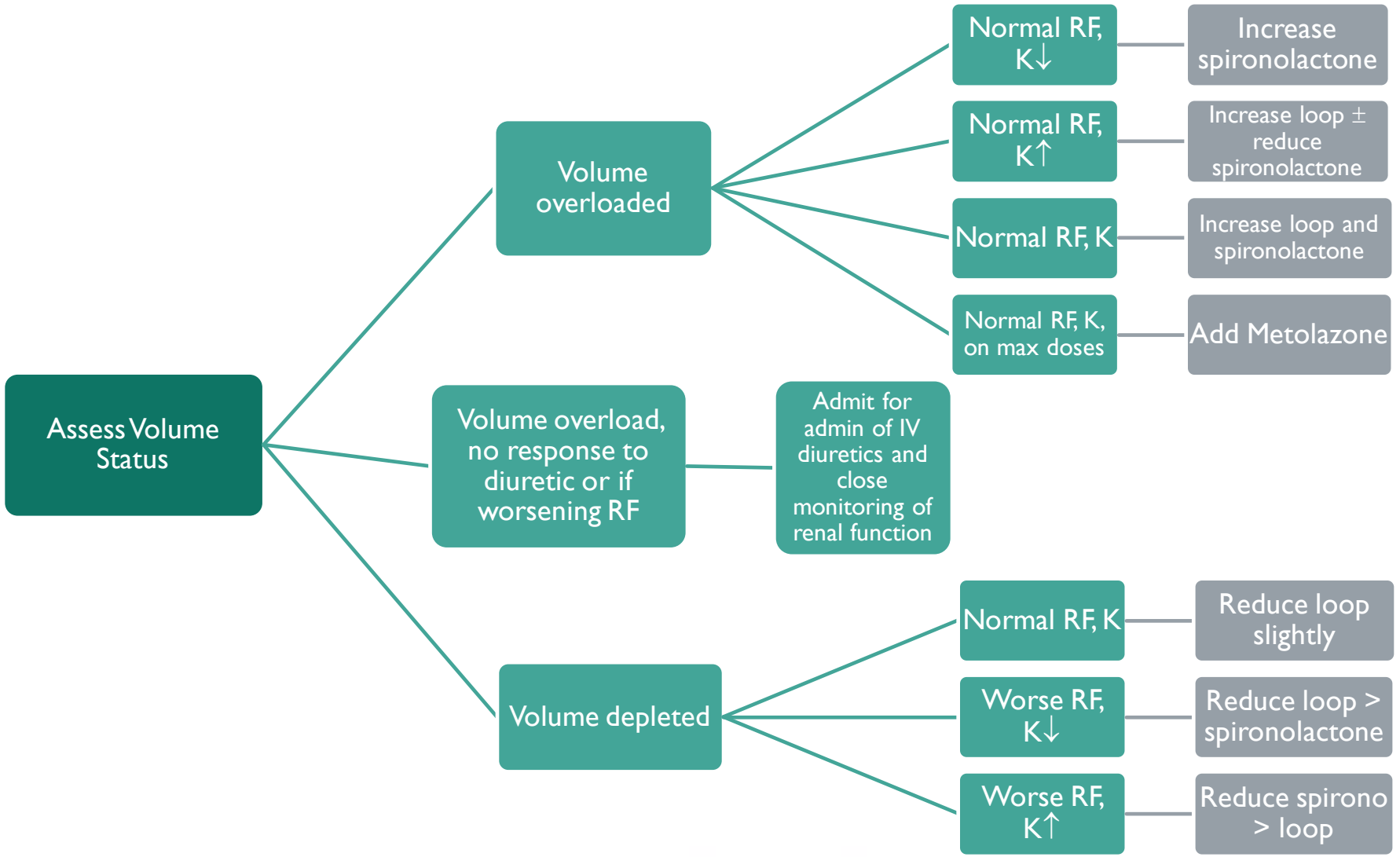
- HFrEF:
  - Begin with volume management using aldosterone antagonists w or w/o loop diuretics as needed
  - Initiate Guideline Directed Medical Therapy (GDMT) – 4 mainstays
    - Beta blockers (metoprolol succinate, carvedilol, bisoprolol), and ARNI/ACEI/ARB for all unless contraindicated
      - Titrate to target dose, even if symptoms are stable/improving
      - Get BP as low as tolerated without orthostasis. HR target 70bpm or less
    - Add SGLT2 inhibitor: Dapagliflozin (Farxiga®) & Empagliflozin (Jardiance®), and Sotagliflozin (Inpefa®) are approved for HF. SGLT2i meds hold 3-4d prior to surgery.
- HFpEF:
    - Start with loop diuretics for volume management. If significant edema despite loop, add aldosterone if eGFR/K+ normal
    - Get BP and HR as low as tolerated – use beta blockers, diltiazem, verapamil (rate -70 is target) as well as ACEI/ARB and consider nitrates, hydralazine (BP)
    - Add SGLT2 Inhibitor (Empagliflozin®), Dapagliflozin (Farxiga®), and Sotagliflozin (Inpefa®) are FDA approved. Hold 3-4d prior to surgery.
- Treat all comorbidities to goal (HTN, arrhythmias, diabetes, pulmonary conditions, sleep apnea, etc.)
- Counseling, education: salt restriction, fluid restriction (if hyponatremic) and other strategies based on conditions (smoking cessation, weight optimization, glucose control, etc.).

Coding for Heart Failure[6]

- Be specific: *correct capture adds 0.360 RAF to the patient with HF*
  - (Acute/chronic) (systolic/diastolic) heart failure – I50.9
- Add pertinent conditions:
  - ASCVD – CABG/CAD *correct capture adds 0.240 RAF to the patient*
  - Heart Arrhythmias – afib, aflutter, SSS *adds 0.299 RAF to the patient*
- Capture everything: Disease interactions exist here

Disease Interaction	Pt. in Community Setting, Non-Dual, Aged into Medicare	Pt. in Community Setting, Non-Dual, Disabled (reason for MCR)
HF + Diabetes (DM w, w/o, unspecified)	0.112	0.023
HF + Chr Lung D/O (COPD, trsplts, CF, PFibrosis, etc.)	0.078	0.062
HF + Kidney (CKD Stage III, IV, V)	0.176	0.314
HF + Specified Heart Arrhythmias (SSS, Afib/Flut, Ht blck)	0.077	0.257
Chr Lung D/O+ Cardiorespir. Failure (home O_2, trach)	0.254	0.242

Acute Treatment to Avoid Hospitalization: Volume Status Management



RF = renal function
Loop = loop diuretic