



Midland Quality
Alliance

MIDLAND QUALITY ALLIANCE
ALGORITHM FOR MANAGEMENT OF
HYPERTENSION
AND
GUIDELINES FOR COST EFFECTIVE
PHARMACOLOGICAL MANAGEMENT

Revised May 2018



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Comparison of ACCF/AHA Stages of HF and NYHA Functional Classifications

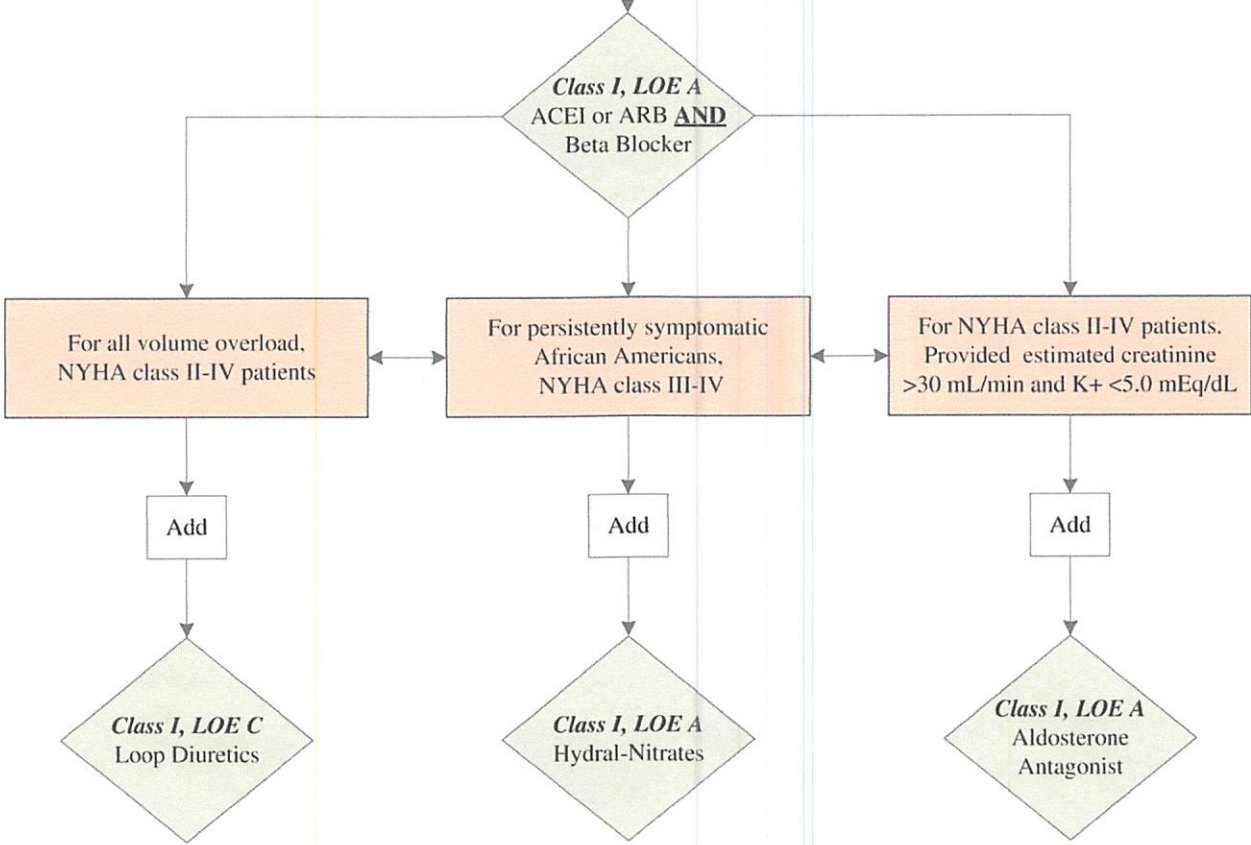
ACCF/AHA Stages of HF (38)

NYHA Functional Classification (46)

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.

**HFrEF Stage C
NYHA Class I – IV
Treatment:**



MIDLAND HEALTHCARE ALLIANCE PREFERRED MEDICATIONS IN CHF

I. STEP ONE THERAPY (ACE inhibitor or ARB + Beta Blocker)

a) ACE inhibitors

Lisinopril (least expensive) \$ <5 USD

Fosinopril (less cough due to less bradykinin) \$\$ 5-25 USE

Ramipril (More potent, more effective in a few studies) \$\$ 5-25 USD

b) ARB (angiotensin receptor blockers)

Losartan (least expensive, but least potent) \$ <5 USD

Valsartan (Moderately potent) \$\$ 5-25 USD

Candesartan (More potent) \$\$\$ 25-100 USD

c) Beta blockers

Carvedilol (most effective in studies AND least expensive) \$ <5 USD

Metoprolol succinate XL (once a day, more chronotropic, if rate needs slowing) \$\$ 5-25 USD

d) ARNI (arb+neprolysin inhibitor) This can be considered instead of ACE or ARB. \$\$\$\$\$ >500 USD

II. STEP TWO THERAPY (add on to above)

a) Diuretic (improves CHF symptoms but does not affect mortality)

Furosemide \$ <5 USD

Bumetanide \$\$ 5-25 USD

b) Aldosterone antagonist

Spironolactone (improves mortality and LV remodeling) \$ <5 USD

c) Hydralazine + nitrates

This should be considered for all African American patients due to demonstrated superior outcomes in these patients

Hypertension

Drug	Dose Range (estimated \$/30 days)	
Thiazide/Thiazide-like Diuretics		
Chlorthalidone	12.5-25	\$8-16
Hydrochlorothiazide	25-50	\$0.6-1.2
Indapamide	1.25-2.5	\$6.68
Metolazone	2.5-10	\$50-114
Ace-i		
Benazepril	10-40	\$1.7-2.8
Captopril	12.5-150	\$68-122
Enalapril	5-40	\$14-28
Fosinopril	10-40	\$4-8
Lisinopril	10-40	\$0.8-1.6
Moexipril	7.5-30	\$19-47
Perindopril	4-16	\$20-40
Quinapril	10-80	\$3.3-6.6
Ramipril	2.5-10	\$3-6
Trandolapril	1-4	\$9-18
ARBs		
Azilsartan	40-80	\$161-175
Candesartan	8-32	\$53-106
Eprosartan	600-800	\$70.50
Irbesartan	150-300	\$4.5-6
Losartan	50-100	\$1.1-3.3
Olmesartan	20-40	\$4-5.3
Telmisartan	20-80	\$8-10
Valsartan	80-320	\$6.6-10
CCB-dihydrophyridines		
Amlodipine	2.5-10	\$0.35-0.5
Felodipine	5-10	\$14-16
Isradipine	5-10	\$31-62
Nicardipine SR	5-20	\$38
Nifedipine LA	60-120	\$8.4-16.8
Nisoldipine	30-90	n/a
CCB-nondihydrophyridines		
Diltiazem SR	180-360	\$10-20
Diltiazem ER	120-480	\$7.5-30
Verapamil IR	40-80	\$0.5-1
Verapamil SR	120-480	\$4-8
Verapamil-delayed onset ER	100-480	\$8-12
Diuretics-loop		
Bumetanide	0.5-4	\$15-51

Furosemide	20-80	\$0.3-1	
Torsemide	5-10	\$1.5-1.9	
Diuretics-K sparing			
Amiloride	5-10	\$6-12	
Triamterene	50-100	\$292	triam/hctz combo (37.5/25mg-75/50mg) is a lot cheaper ~\$1.5-3
Diuretics-aldosterone antag.			
Eplerenone	50-100	\$37-75	
Spironolactone	25-100	\$1.3-2.6	
Beta Blockers-cardioselective			
Atenolol	25-100	\$0.8-1.6	
Betaxolol	5-20	\$6.6-26	
Bisoprolol	2.5-10	22	
Metoprolol tartrate	100-400	\$1-4.2	
Metoprolol succinate	50-200	\$7-14	
Beta Blockers-cardioselective and vasodilatory			
Nebivolol	5-40	\$121-242	
Beta Blockers-noncardioselective			
Nadolol	40-120	\$33-99	
Propranolol IR	160-480	\$15-45	
Propranolol LA	80-320	\$14-37	
Beta Blockers-intrinsic sympathomimetic			
Acebutolol	200-800	\$4.4-12	
Carteolol	2.5-10	n/a	
Penbutolol	10-40	n/a	
Pindolol	10-60	\$30-180	
Beta Blockers-combined alpha and beta			
Carvedilol	12.5-50	\$1.5-3	
Carvedilol CR	20-80	148	
Labetalol	200-800	\$15-30	
Direct renin inhibitor			
Aliskeren	150-300	\$166-210	
Alpha-1 Blockers			
Doxazosin	1-8	\$7-11	
Prazosin	2-20	\$13-99	
Terazosin	1-20	\$2.6-5.4	
Central alpha1-agonist and other centrally acting drugs			
Clonidine PO	0.1-0.8	\$0.5-3.2	
Clonidine Patch	0.1-0.3	\$58.5-107	
Methyldopa	250-1000	\$8-17	
Guanfacine	0.5-2	\$2.6-6.2	
Direct vasodilators			
Hydralazine	50-200	\$2-6	
Minoxidil	5-100	\$5-63	