HHP Care Model and Disease Management Webinar Series

Heart Failure

Thursday, March 11, 2021
5:30pm – 6:30pm

HAWAIʻI PACIFIC HEALTH | HAWAIʻI HEALTH PARTNERS

Moderator – 03/11/21

Andy Lee, MD
Medical Director, *Hawai‘i Health Partners*
Chief of Staff, *Pali Momi Medical Center*
Hawai‘i Pacific Health

HAWAI‘I PACIFIC HEALTH | HAWAI‘I HEALTH PARTNERS

Disclaimer:

- The following is intended as information resource only for HHP/HPH providers, clinicians, administrative and clinical leaders.

- Specific areas may not pertain directly to your clinical practice area and/or may not be applicable to your practice based on your existing workflows, infrastructure, software (e.g. EHR), and communications processes.

Webinar Information

- You have been automatically muted.
  You cannot unmute yourself.
- You will be able to submit questions via the Q&A section.
  - Due to time constraints, any unanswered questions will be addressed this week and posted on the HHP website
- A recording of the meeting will be available tomorrow on the HHP website and intranet.

How to Claim CME Credit

1. Step 1: Confirm your attendance
   - You should have completed a brief questionnaire before joining today's live webinar.

2. Step 2: HPH CME team will email you instructions
   - Complete and submit evaluation survey that will be emailed to you within one week of the offering.
   - Your CE certificate will be immediately available to you upon completion of your evaluation.
   - Questions? Email hphcontinuingeduc@hawaiipacifichealth.org

CME Accreditation Statement

- In support of improving patient care, Hawai‘i Pacific Health is jointly accredited by the Accreditation Council for Continuing Medical Education (ACCME), the Accreditation Council for Pharmacy Education (ACPE), and the American Nurses Credentialing Center (ANCC), to provide continuing education for the healthcare team.

- Hawai‘i Pacific Health designates this webinar activity for a maximum of AMA PRA Category 1 Credit (s) ™1.0 for physicians. This activity is assigned 1.0 contact hour for attendance at the entire CE session.

JOINTLY ACCREDITED PROVIDER™

INTERPROFESSIONAL CONTINUING EDUCATION

Disclosures

- Except as noted below, the planners and presenters of this activity report no relationships with companies whose products or services (may) pertain to the subject matter of this meeting, :

HHP Care Model and Disease Management Webinar Series

- Purpose and Goals:
  - To promote integration across the network
  - To increase awareness of network expertise
  - To standardize best practices addressing clinical effectiveness, efficiency, appropriateness and patient experience
  - To improve population level outcomes and the overall performance
  - Billed as a conversation: the set-up is a dyad presentation by a Primary Care Physician and Specialist on a clinical topic of interest

- Occurrence:
  - 2nd and last Thursday of the month from 5:30—6:30 pm

QPP/SSP: Attendance at HHP Webinars

- QPP & SSP
  - 0.5 Point = attended ≥10 live webinars
  - 1 Point = attended ≥15 live webinars

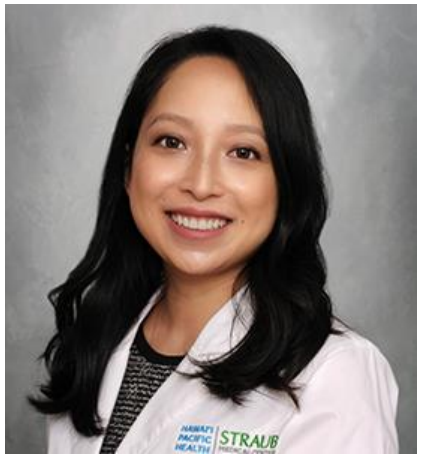
- Providers must register via the pre-survey form and attend at least 10 live webinars in 2021

- Credit will **not** be given for watching the recording

Date	Topic/*Speaker*
1/28	**Chronic Kidney Disease (CKD) #1:** *Dr. Rick Hayashi & Dr. Marti Taba*
2/11	Wound Care: *Dr. Mike Shin & Dr. Sandra Noon*
2/25	Pediatric Neurology: *Dr. Keith Abe & Dr. Justin Hino*
3/11	**Heart Failure (HF) #1:** *Dr. Carol Lai & Dr. Rajive Zachariah*
3/25	**SPRING BREAK**
4/8	Chronic Kidney Disease (CKD)#2
4/29	Heart Failure (HF) #2
5/13	Opioids - Acute
5/27	Peds Nephrology: Hematuria
6/10	Dementia
6/24	Chronic Kidney Disease (CKD) #3

Date	Topic/Speaker
7/8	Heart Failure (HF) #3
7/29	Hospital at Home/Home Visits
8/12	Diabetes Mellitus
8/26	Dermatology: Skin Cancer
9/9	Opioids - Chronic
9/30	Diabetic Foot
10/14	Hypertension
10/28	Chronic Kidney Disease (CKD) #4
11/11	Psychiatric Meds: Adult & Peds
11/25	**THANKSGIVING**
12/16	Heart Failure (HF) #4
12/30	**NEW YEAR'S EVE**

Heart Failure



Carol Lai, MD

Cardiologist, Straub Medical Center

Hawai‘i Pacific Health Medical Group

Rajive Zachariah, MD

Primary Care Physician – Internal Medicine, Straub Main Clinic & Hospital,

Hawai‘i Pacific Health Medical Group

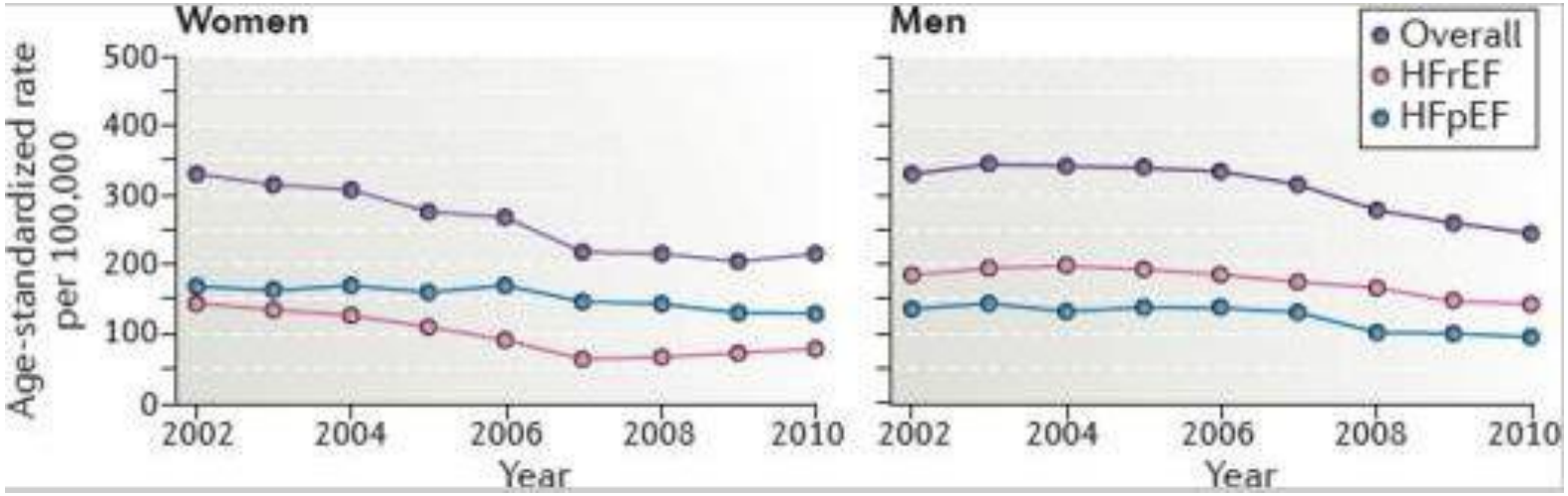
HAWAI‘I PACIFIC HEALTH | HAWAI‘I HEALTH PARTNERS

HF Webinar Series

- Session #1: General overview
  - Epidemiology of heart failure
  - Diagnosis and classification
  - Risk factors
  - Triggers for referral
- Session #2: Heart failure with reduced EF
- Session #3: Heart failure with preserved EF
- Session #4: To be determined

Epidemiology

- 6.5 million Americans have heart failure
- HF incidence has shown signs of stabilization
  - Driven by improvements in primary prevention of cardiovascular disease and treatment of ischemic heart disease.



Eur J Heart Fail. 2020; 22(8): 1342-1356

Nat Rev Cardiol. 2016;13(6):368-378

Epidemiology

- HF prevalence has been increasing
  - Estimated prevalence in the US is 2.5-4.2%
  - Prevalence increases with age
    - » 0.7% in persons 45-54 years
    - » 8.4% in persons ≥ 75 years
  - Most likely underestimated
  - Prevalence is expected to rise by 46% by 2030

- HF burden in the young has been increasing
  - Proportion of patients with HF ≤ 50 years doubled
  - Increased prevalence of obesity and obesity-related co-morbidities: diabetes, hypertension, and atrial fibrillation

Eur J Heart Fail. 2020; 22(8): 1342-1356

Heart. 2007; 93(9): 1137-1146

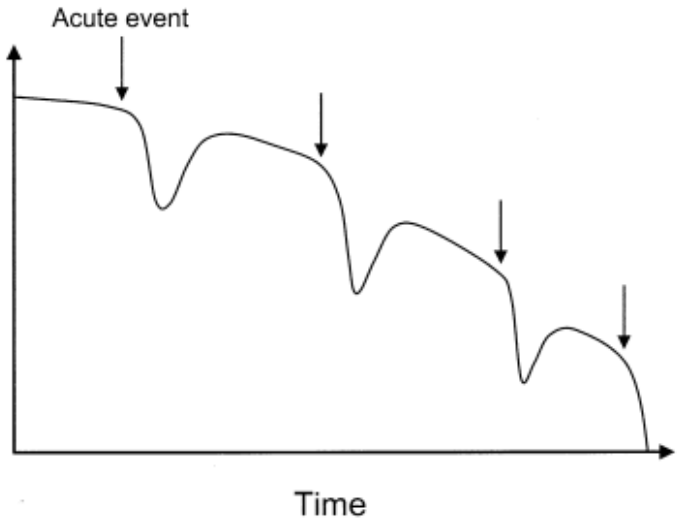
Hospitalization

- HF is the most common diagnosis in hospitalized patients >65 years
- HF admission represents 1-2% of all hospital admissions
- Associated with the highest 30-day readmission rate (20-25%)
- 50% of patients will be admitted at least once within 1 year of diagnosis
- 20% will be readmitted again within that same year

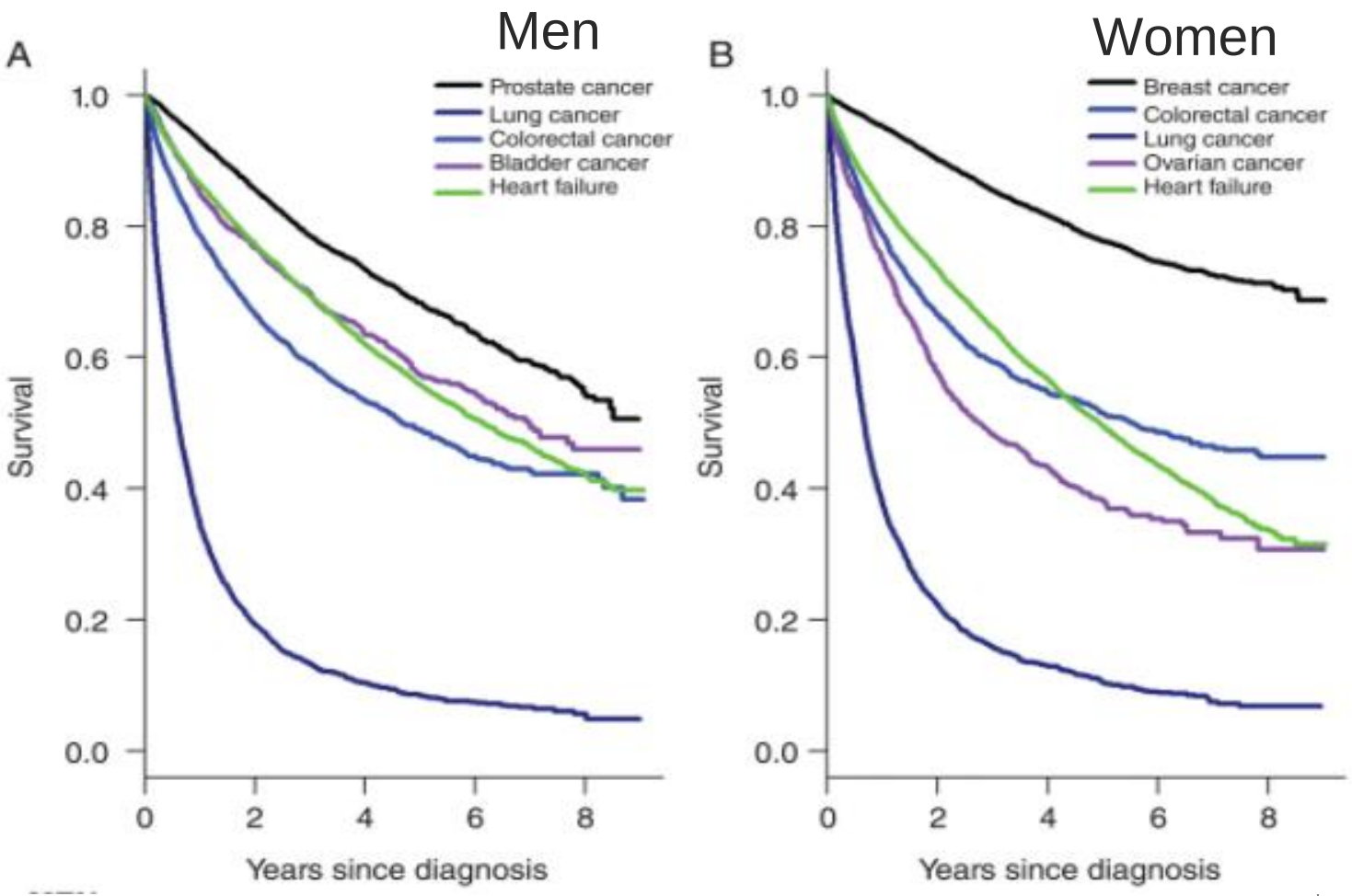
Eur J Heart Fail. 2020; 22(8): 1342-1356

Prognosis

- 1, 5, and 10-year survival is estimated to be 87%, 57%, and 35%, respectively
- Mortality rates are similar between HFrEF and HFpEF
- Hospitalization has clear prognostic significance
  - 30-day mortality ranges from 5-20%
  - 5-year mortality rate of 75%, regardless of LVEF
  - Survival curve drops fastest during the initial weeks after hospitalization, and declines more gradually thereafter



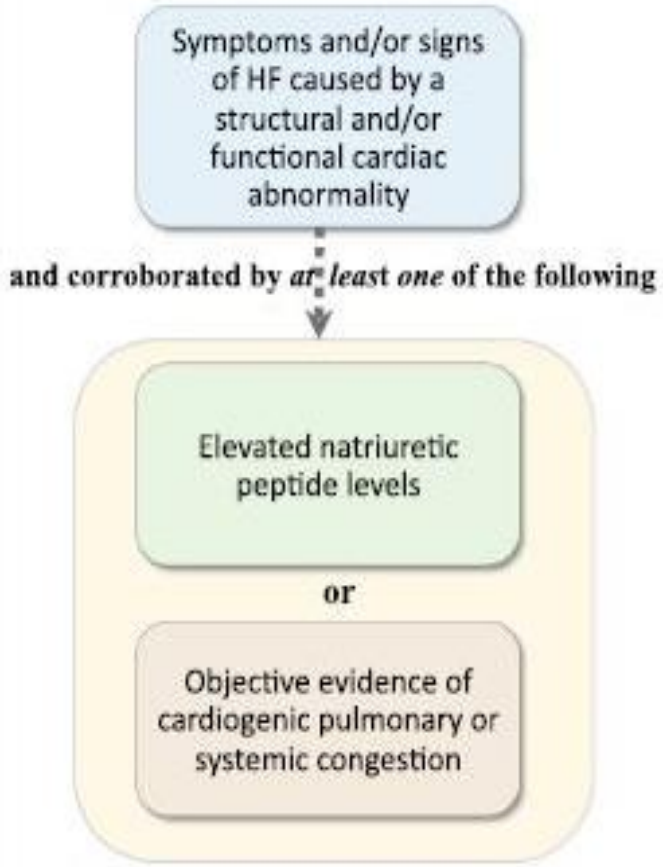
“As Malignant As Cancer”



Eur J Heart Fail. 2017;19(9):1095-1104

Heart Failure Definition and Diagnosis

- HF is a clinical syndrome with current or prior symptoms and/or signs caused by a structural and/or functional cardiac abnormality
  - Determined by EF <50%, abnormal cardiac chamber enlargement, E/e' > 15, moderate/severe LVH, or moderate/severe valvular obstructive or regurgitant lesion
- Corroborated by at least one of the following:
  - Elevated natriuretic peptide levels
  - Objective evidence of cardiogenic pulmonary or systemic congestion by diagnostic modalities



Symptoms and Signs

Symptoms	Signs
Typical - Breathlessness - Orthopnea - Paroxysmal nocturnal dyspnea - Reduced exercise tolerance - Fatigue, tiredness - Ankle swelling - Inability to exercise - Edema - Bendopnea Less typical - Nocturnal cough - Wheezing - Bloated feeling - Postprandial satiety - Loss of appetite - Decline in cognitive function (especially in elderly) - Depression - Dizziness, syncope	More specific - Elevated jugular venous pressure - Third heart sound - Cardiomegaly, displaced apex - Hepatojugular reflux Less specific - Peripheral edema - Pulmonary rales - Unintentional weight gain (>2kg/week) - Weight loss with muscle wasting - Cardiac murmur - Recued air entry and dullness to percussion suggestive of pleural effusion - Tachycardia, irregular pulse - Tachypnea - Hepatomegaly/ascites - Cold extremities - Oliguria - Narrow pulse pressure

J Card Fail 2021

Natriuretic Peptides

- Best objective marker to diagnose HF
  - Signals myocardial stretch, which is directly related to the amount of volume or pressure overload
- Used as initial diagnostic test
- Serial changes provide prognostic information
  - Higher concentrations have been shown to predict hospitalizations, arrhythmias, and risk of death related to pump failure
  - Biomarker-guided therapy has been shown to be superior to standard management
- Patients with HFpEF may have a normal level

Curr Opin Cardiol. 2012;27(6):661-668

Factors Influencing Natriuretic Peptides

Increase in natriuretic peptides	
Cardiac - Acute coronary syndromes - Atrial fibrillation - Valvular heart disease - Cardiomyopathies - Myocarditis - Cardioversion - Congenital heart disease	Noncardiac - Age - Female gender - Renal impairment - Systemic bacterial infection - Obstructive sleep apnea - Critical illness - Severe burns
Decrease in natriuretic peptides	
- Obesity	

Card Fail Rev. 2019; 5(1):44-49.

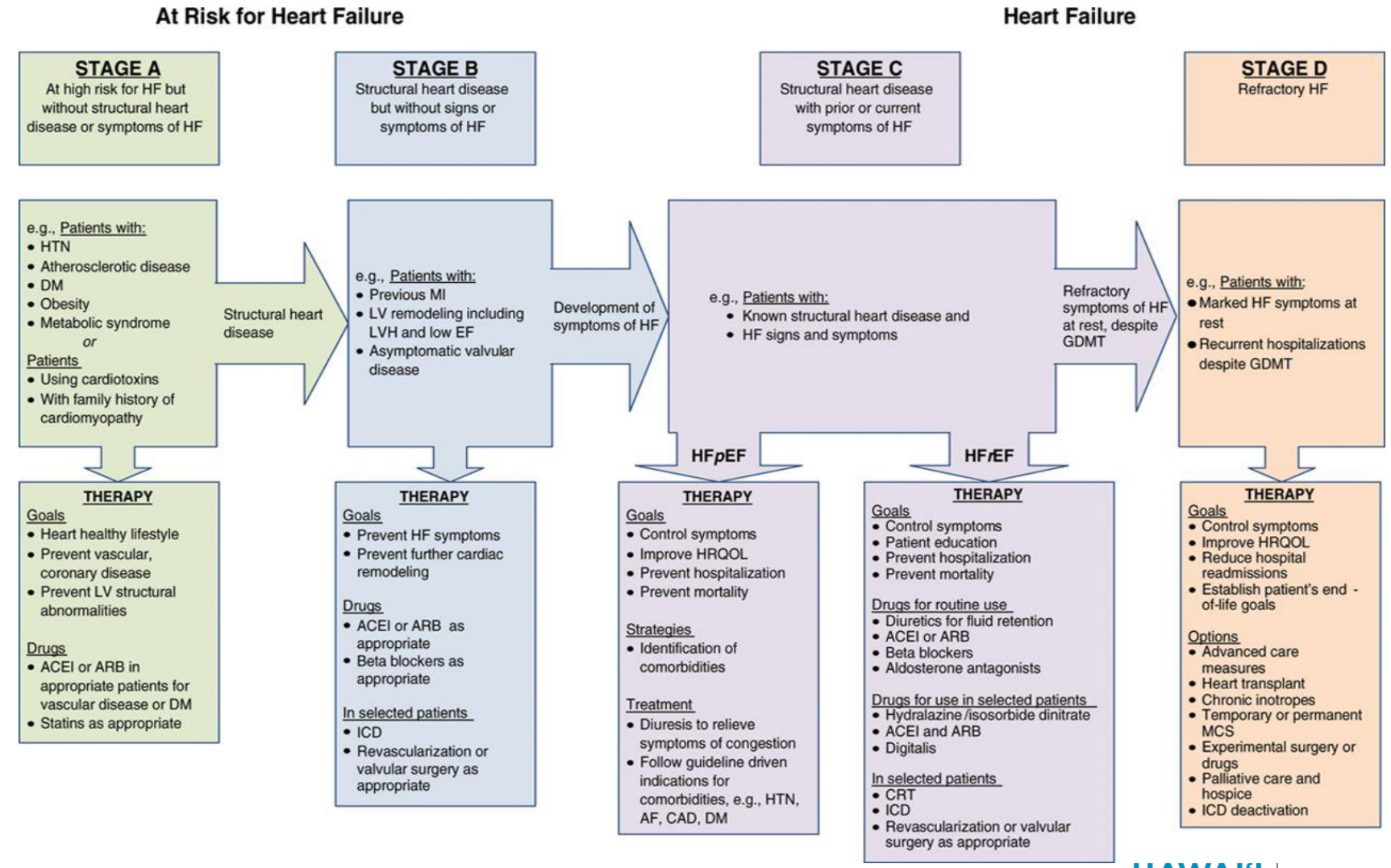
Heart Failure Classification

- HF with reduced EF (HFrEF): EF ≤40%
- HF with preserved EF (HFpEF): EF ≥50%
- HF with mildly reduced EF (HFmrEF): EF 41-49%
- HF with recovered EF: Patients who previously had HFrEF but not have an EF >40%

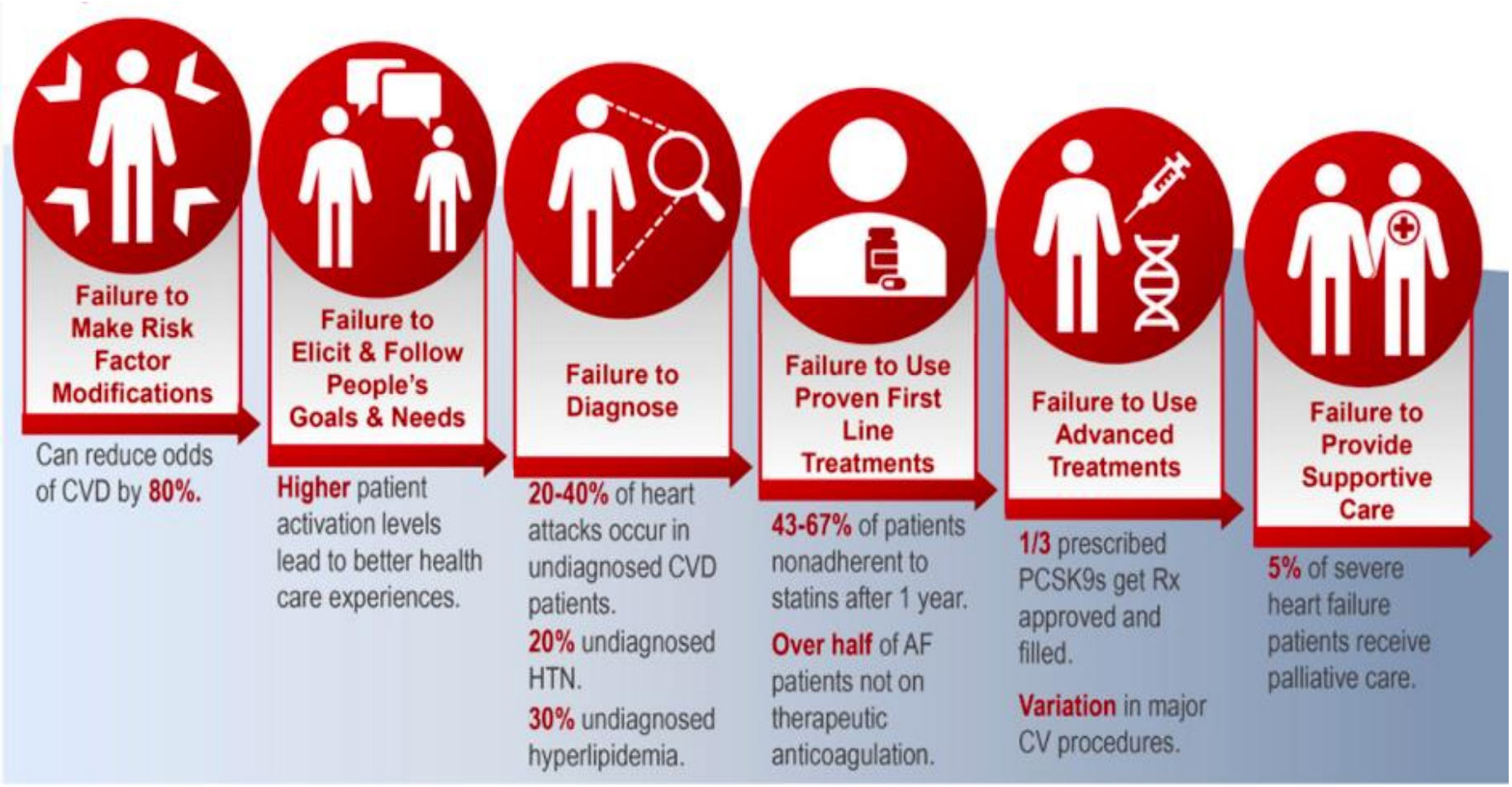
New York Heart Association (NYHA) Class

Class	Symptoms
I	No limitation in physical activity. Ordinary physical activity does not cause symptoms of HF
II	Slight limitation in physical activity. Comfortable at rest, but ordinary physical activity results in symptoms of HF.
II	Marked limitation in physical activity. Comfortable at rest, but less than ordinary activity causes symptoms of HF.
IV	Unable to perform any physical activity without symptoms of HF, or symptoms of HF at rest.

Stages of Heart Failure



Opportunities in Prevention and Treatment



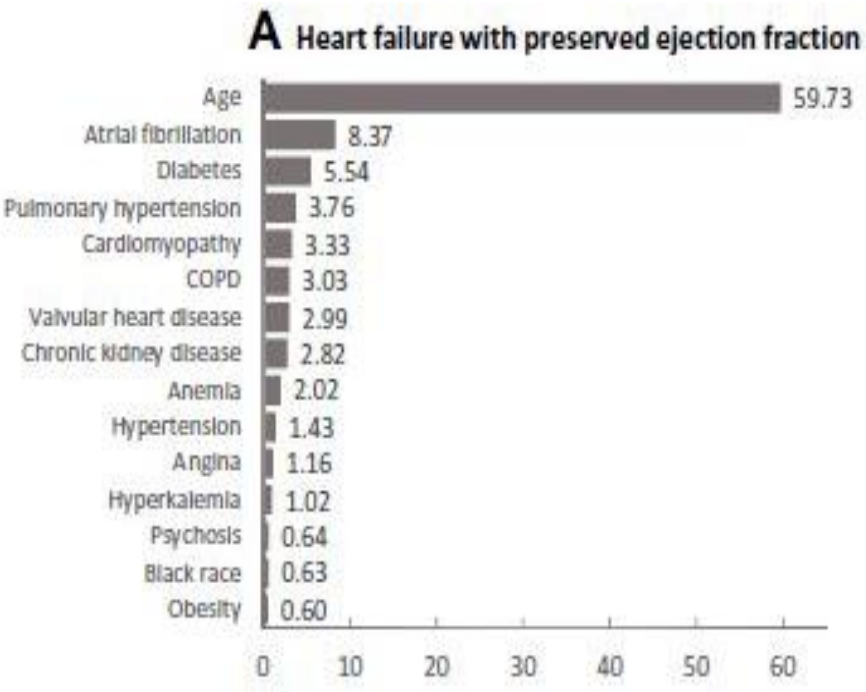
Circ. 2019;139(9)e44-e54.

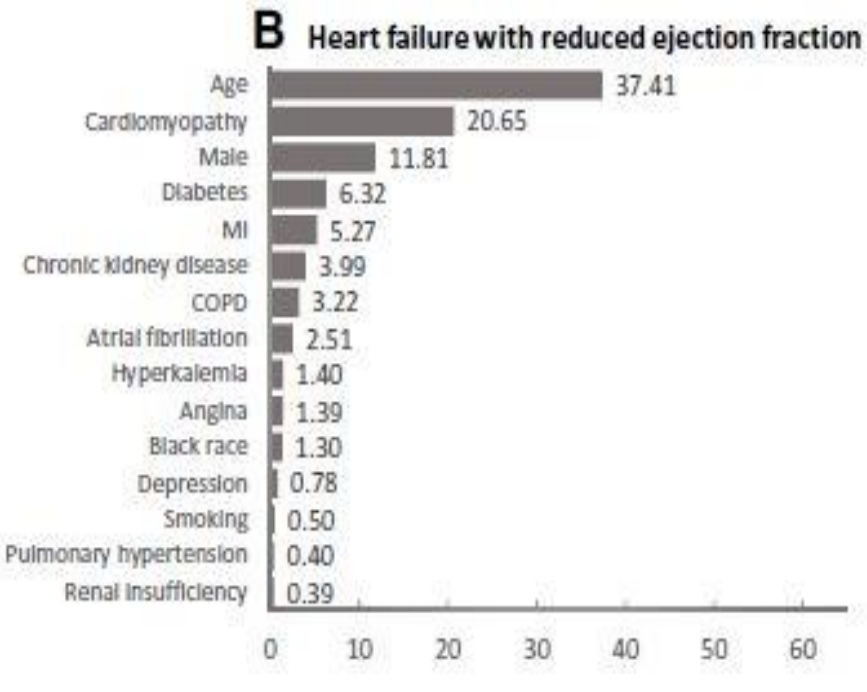
Risk Factors

	HR*	95% CI	
Variables			
Demographics			
Age (per 5 years)	1.46	1.44	1.48
Gender			
Female	1.00	Referent	
Male	1.22	1.17	1.28
Race			
White	1.00	Referent	
Black	1.01	0.90	1.12
Other	0.82	0.74	0.90
Comorbidities			
Atrial fibrillation	1.90	1.79	2.02
Anemia	1.27	1.21	1.34
Cardiomyopathy	2.22	1.97	2.50
COPD	1.87	1.76	1.98
Depression	1.02	0.95	1.09
Diabetes	1.72	1.64	1.80
Hyperkalemia	1.39	1.20	1.61
Hypertension	1.18	1.13	1.24
Hypotension	0.95	0.83	1.08
Myocardial infarction	1.10	0.94	1.30
Obesity	1.15	1.03	1.27
Other dysrhythmia	1.14	1.07	1.22
Psychosis	0.99	0.94	1.04
Hyperlipidemia	0.91	0.87	0.95
Pulmonary hypertension	1.26	1.06	1.50
Valvular heart disease	1.45	1.32	1.59
Sleep apnea	1.11	0.98	1.27
Smoking	1.33	1.22	1.44
Stroke	1.27	1.16	1.39
TIA	0.81	0.70	0.94
Angina	1.17	1.06	1.30
Renal insufficiency	1.15	0.98	1.36
Chronic renal disease	1.58	1.46	1.71

Clin Epidemiol. 2020;12:607-616.

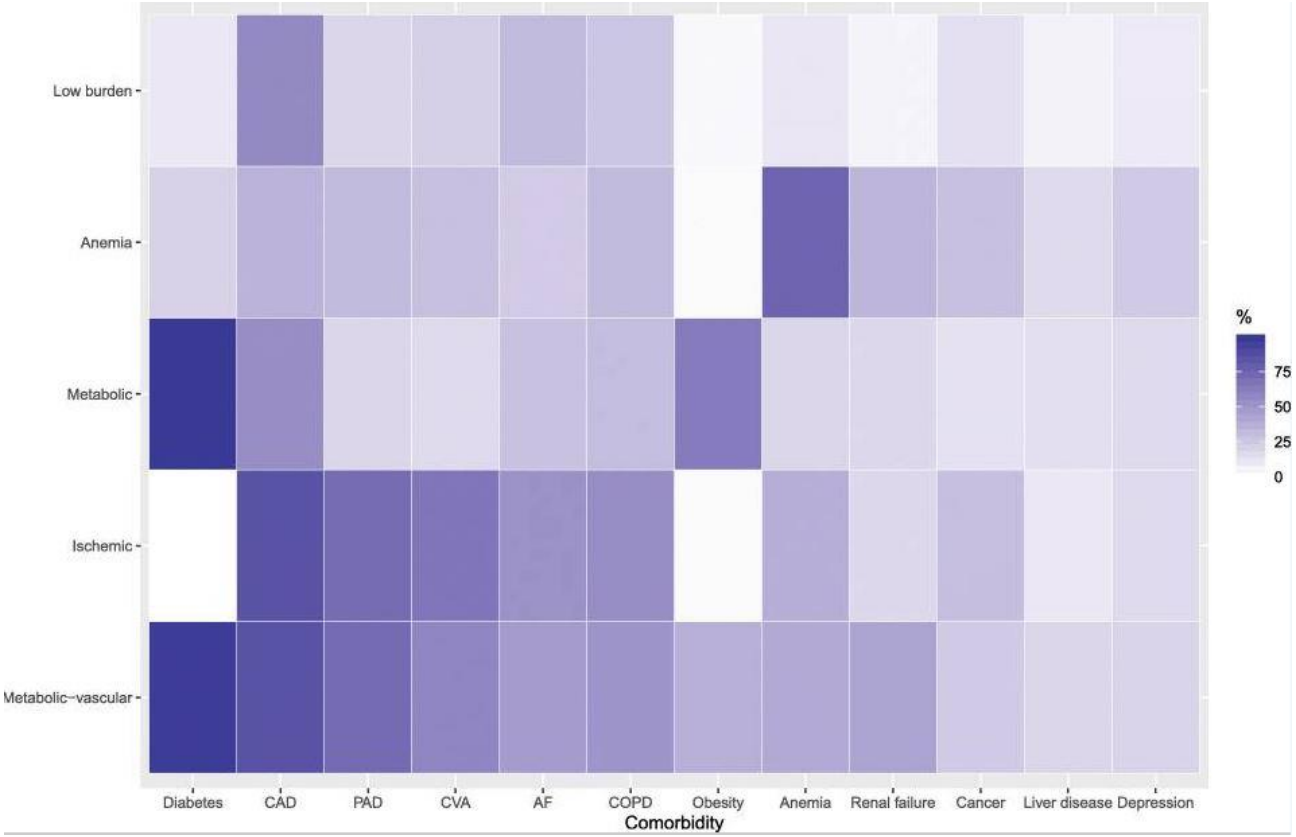
Risk Factors





Clin Epidemiol. 2020;12:607-616.

Risk Factors: Co-morbidity Clusters



	Low burden	Metabolic-vascular	Ischemic	Anemia	Metabolic
Admission HR	1.00 (Ref)	2.21 (2.17-2.25)	2.08 (2.04-2.12)	1.49 (1.44-1.54)	1.16 (1.14-1.19)
Mortality HR	1.00 (Ref)	1.87 (1.74-2.01)	1.24 (1.16-1.33)	1.46 (1.30-1.64)	1.18 (1.09-1.29)

BMC Med. 2021;19(9)

Risk Factor Modification

- Lifetime risk of developing HF in both men and women is 20%

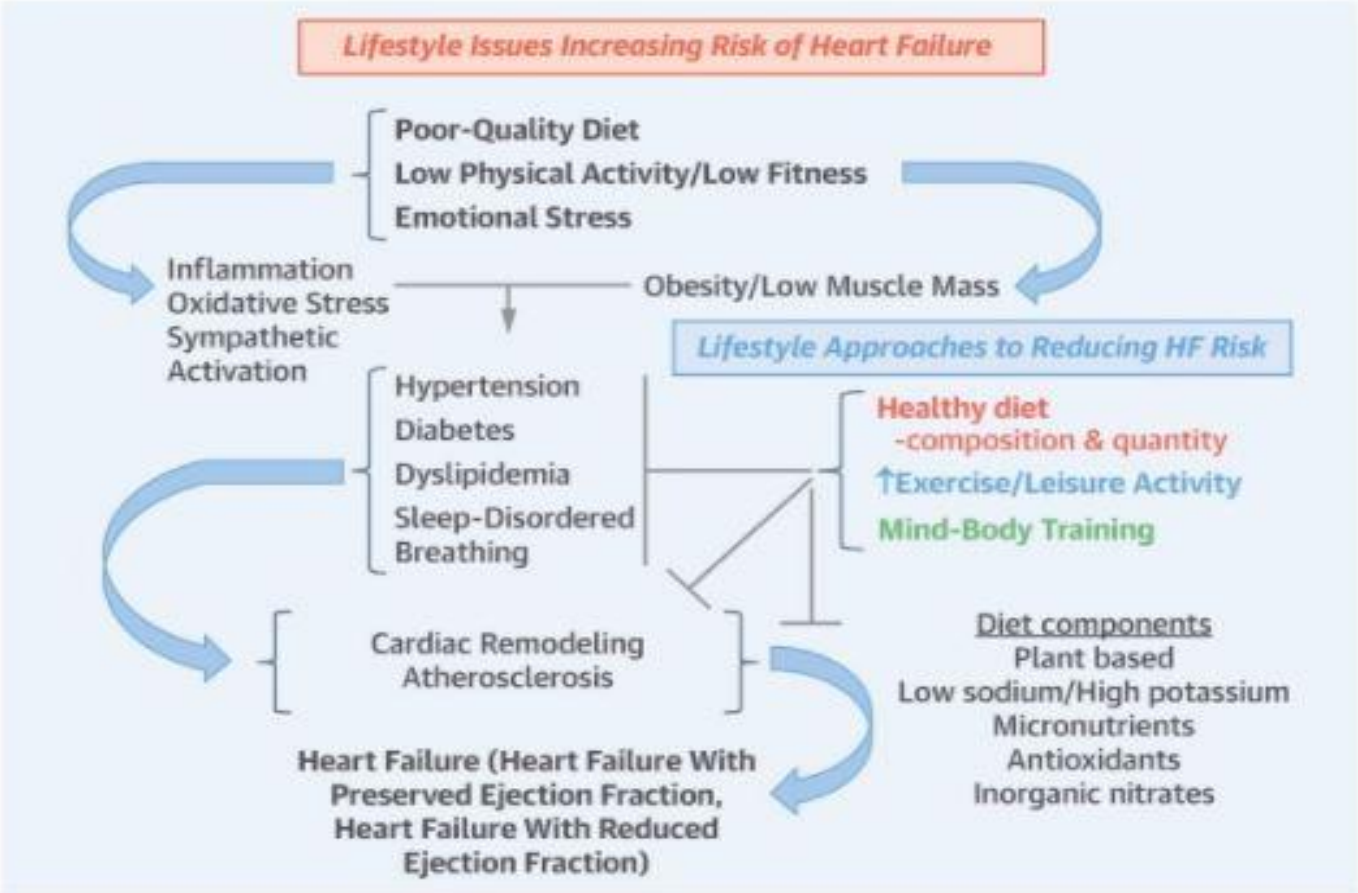
Index Age, y	Men		Women	
	5-Year Risk	Lifetime Risk	5-Year Risk	Lifetime Risk
40	0.2	21.0	0.1	20.3
50	0.8	21.0	0.1	20.5
60	1.3	20.5	0.7	20.5
70	4.0	20.6	2.2	20.2
80	8.3	20.2	7.8	19.3
All values are percentages.				

Index Age, y	Lifetime Risk for CHF					
	Men			Women		
	SBP <140 and DBP <90 mm Hg	SBP 140–159 or DBP 90–99 mm Hg	SBP ≥160 or DBP ≥100 mm Hg	SBP <140 and DBP <90 mm Hg	SBP 140–159 or DBP 90–99 mm Hg	SBP ≥160 or DBP ≥100 mm Hg
Treated subjects included in highest blood pressure stratum						
40*	14.8	22.9	27.9	12.0	20.2	28.9
50†	17.3	25.4	27.0	12.4	25.2	26.6
60	17.4	19.6	29.0	14.4	21.3	27.4
70	15.1	20.3	27.8	14.3	17.1	24.5
80	10.1	19.4	27.9	10.7	10.0	23.9

Circ. 2002; 106(24): 3068-3072

Lifestyle Modification

- HF can be prevented by favorable lifestyle choices



J Am Coll Cardiol. 2018;72(19):2391-2405

Triggers for Referral

- New-onset HF (regardless of EF) for evaluation of etiology, guideline-directed evaluation and management of recommended therapies, and assistance in disease management
- Chronic HF with high-risk features (I-NEED-HELP)

I	Inotropes	Need for chronic intravenous inotropes.
N	NYHA Class/Natriuretic peptides	Persistent NYHA III or IV and/or persistently elevated BNP or NT-ProBNP
E	End-organ dysfunction	Worsening renal or liver dysfunction in setting of heart failure
E	Ejection fraction	Persistently reduced LVEF ≤35% despite GDMT for ≥3 months
D	Defibrillator shock	Recurrent appropriate defibrillator shocks
H	Hospitalizations	>1 hospitalization with HF within the last 12 months
E	Edema/Escalating diuretics	Persisting fluid overload and/or increasing diuretic requirement
L	Low blood pressure	Consistently low BP with systolic <90mmHg
P	Prognostic medication	Inability to uptitrate or need to decrease/cease GDMT

J Am Coll Cardiol. 2021;77(6):772-810

Triggers for Referral

- Annual review for patients with established advanced HF in which patients/caregivers and clinicians discuss current and potential therapies for both anticipated and unanticipated events, possible HF disease trajectory and prognosis, patient preferences, and advanced care planning

J Am Coll Cardiol. 2021;77(6):772-810

Initial Evaluation

- NT-proBNP
- CBC, BMP, liver function, iron studies, thyroid studies, HbA1c
- ECG
- Chest X-ray
- Echocardiogram

Take Home Points

- The incidence of HF has stabilized while the prevalence is increasing
- HF is no longer a disease of the elderly
- HF is a clinical syndrome corroborated by elevated natriuretic peptides or objective evidence of congestion
- Aggressive risk factor and lifestyle modification is critical in the prevention of HF
- Management of HF requires multidisciplinary effort. Remember I-NEED-HELP

Thank You

- Session #1: General overview
  - Epidemiology of heart failure
  - Diagnosis and classification
  - Risk factors
  - Triggers for referral
- Session #2: Heart failure with reduced EF
- Session #3: Heart failure with preserved EF
- Session #4: To be determined

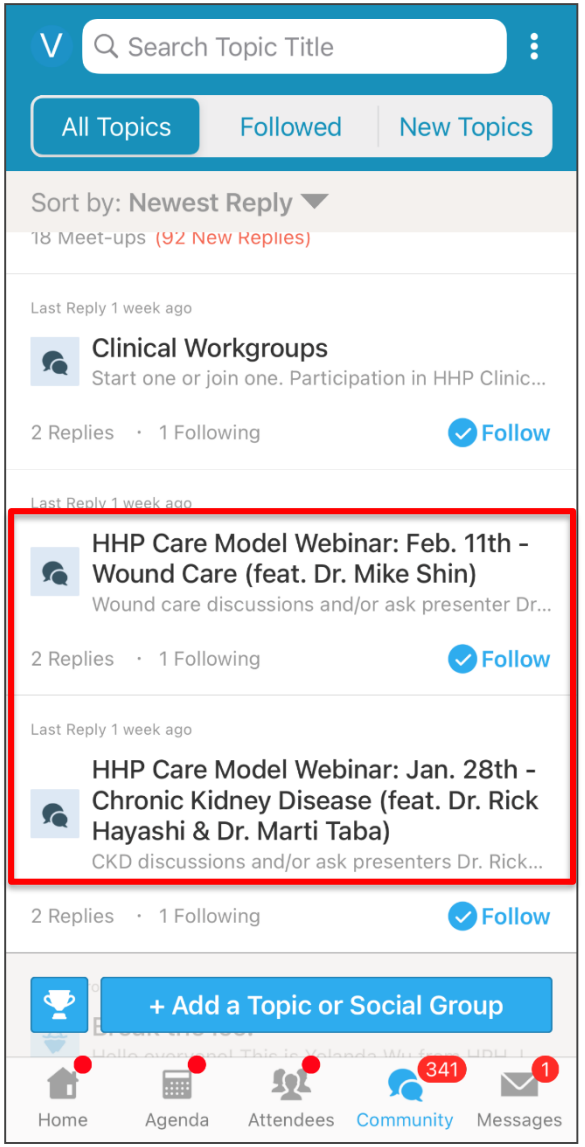
Q&A

HAWAIʻI PACIFIC HEALTH | HAWAIʻI HEALTH PARTNERS

CREATING A HEALTHIER HAWAIʻI

Whova: Webinar Discussion Topics

- Discussion topic opens 1st week of the month.
- Before & after the webinar:
  - Ask presenters questions.
  - Discuss with your colleagues
- How to Access
  - Instruction emails sent earlier today.
  - Need assistance? Info@hawaiihealthpartners.org



HAWAIʻI PACIFIC HEALTH | HAWAIʻI HEALTH PARTNERS

Next Webinar:

HHP/HPH Community Webinar:

COVID-19 Updates

Thursday, March 18, 2021

5:30pm – 6:30 pm

Thank you!

- A recording of the meeting will be available afterwards
- Unanswered question?
  - Contact us at info@hawaiihealthpartners.org

HAWAIʻI PACIFIC HEALTH | HAWAIʻI HEALTH PARTNERS