

## Factors potentially contributing to worsening heart failure

<b>Cardiovascular factors</b>
Superimposed ischemia or infarction
Uncontrolled hypertension
Unrecognized primary valvular disease
Worsening secondary mitral regurgitation
New onset or uncontrolled atrial fibrillation
Excessive tachycardia / bradycardia
Pulmonary embolism
<b>Systemic factors</b>
Inappropriate medications NSAIDs, pioglitazone, CCB (amiodipine), TNF- $\alpha$ inhibitors
Superimposed infection
Anemia
Uncontrolled diabetes
Thyroid dysfunction
Electrolyte disorders
<del>Pregnancy</del> untreated OSA
<b>Patient-related factors</b>
Medication noncompliance
Dietary indiscretion (goal sodium < 3g/d)
Alcohol consumption
Substance abuse - smoking, alcohol, stimulants

Graphic 73383 Version 2.0

OTHER DRUGS TO AVOID - TMP/SMX (renal toxicity)  
 TCA (arrhythmia)  
 metformin (lactic acidosis)  
 PDE inhibitors ( $\downarrow$  BP, mortality)

## Differential diagnosis of heart failure with preserved ejection fraction

### Heart failure with preserved ejection fraction (HFpEF)

HFpEF (contributing factors include hypertension, aging, coronary heart disease, diabetes mellitus, sleep-disordered breathing, chronic kidney disease, and obesity)

### Cardiomyopathies with preserved ejection fraction

#### Restrictive cardiomyopathy

- Familial causes include sarcomeric gene mutations, familial amyloidosis (TTR or apolipoprotein mutation), unknown gene mutation, familial causes of iron overload (hereditary hemochromatosis, hereditary anemias), Fabry disease, glycogen storage disease, desminopathy, and pseudoxanthoma elasticum
- Non-familial causes include amyloid (AL or wild-type TTR), systemic sclerosis, endomyocardial fibrosis (idiopathic, caused by hypereosinophilic syndrome, or drugs), carcinoid heart disease, metastatic cancer, radiation, non-familial iron overload (eg, acquired iron-loading anemia, high-dietary intake), and drug toxicity (anthracycline)

#### Hypertrophic cardiomyopathy

- Familial causes in addition to sarcomere gene mutations include unknown mutations, glycogen storage disease, lysosomal storage disease (including Fabry disease), syndromic hypertrophic cardiomyopathy (eg, Noonan's syndrome, LEOPARD syndrome, Friedreich's ataxia), and familial amyloidosis (TTR or apolipoprotein mutation)
- Non-familial causes include non-familial amyloidosis (AL or wild-type TTR)

#### Noncompaction cardiomyopathy

### Valvular heart disease

Valvular stenosis

Valvular regurgitation

### Right heart failure

Pulmonary hypertension

Right ventricular infarction

Arrhythmogenic right ventricular cardiomyopathy

### Pericardial disease

Cardiac tamponade

Constrictive pericarditis

Effusive-constrictive pericardial disease

### Obstructive lesion in heart or great vessel

Atrial myxoma

Pulmonary vein stenosis

<b>High-output heart failure</b> (thyrotoxicosis, pregnancy)
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<b>Transient left ventricular systolic dysfunction</b> (Takotsubo's)
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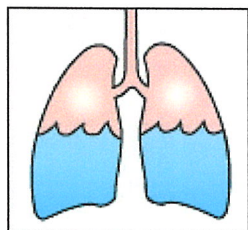
Adapted from: Oh JK, Hatle L, Tajik AJ, Little WC. Diastolic heart failure can be diagnosed by comprehensive two-dimensional and Doppler echocardiography. *J Am Coll Cardiol* 2006; 47:500.

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## Heart failure action plan - page 1

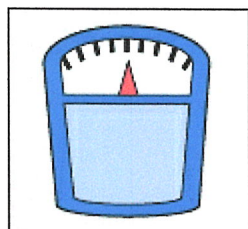
Every morning, when you get up, check how you are doing. Look for:



### Changes in breathing

Ask yourself:

- Can I breathe as well as I usually can?
- Am I getting out of breath doing things I can normally do without a problem?
- Am I coughing more than usual?
- Did I use more pillows than usual to sleep last night?

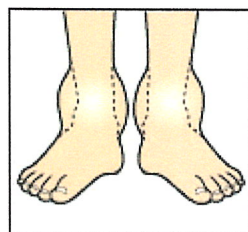


### Changes in weight

Weigh yourself every morning after urinating but before eating.

Write down your weight on a calendar. Then ask yourself:

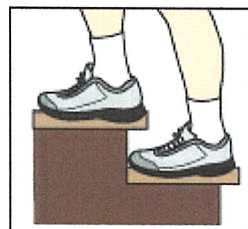
- Has my weight gone up or gone down compared to yesterday?  
If so, by how many pounds?
- Has my weight gone up or gone down compared to a week ago?  
If so, by how many pounds?



### New or worse swelling

Ask yourself:

- Are my ankles more swollen than usual?
- Do my socks or shoes feel tighter?
- Do my clothes feel tighter at the waist?
- Do my rings fit more snugly?




### Changes in your ability to do everyday things

Ask yourself:

- Can I do all the things I normally do, such as get dressed on my own, make meals, or go for walks?
- Do I feel dizzy or more tired than usual?
- Do I have any new symptoms, like pressure or pain in my chest?
- Does my heartbeat feel strange or irregular?
- Do I feel like I might pass out?

See the next page to find out what you should do if any of these changes occur.

## Heart failure action plan - page 2

Symptom	Action
<p style="text-align: right;">Best weight: <input style="width: 60px; height: 20px;" type="text"/></p> <p>If you have:</p> <ul style="list-style-type: none"> <li>▪ No trouble breathing</li> <li>▪ No chest pain</li> <li>▪ No weight change overnight or over the last week</li> <li>▪ The usual amount of ankle swelling</li> <li>▪ No change in ability to be active</li> </ul>	<p>Your symptoms are under control.</p> <ul style="list-style-type: none"> <li>▪ Keep taking your medications every day, as ordered</li> <li>▪ Keep weighing yourself every day and writing down your weight</li> <li>▪ Keep all your medical appointments</li> </ul>
<p>If you:</p> <ul style="list-style-type: none"> <li>▪ Need more pillows than usual to sleep</li> <li>▪ Have more trouble breathing when you are active</li> <li>▪ Have more coughing than usual</li> <li>▪ Increased shortness of breath with activity</li> <li>▪ Gain 2 to 3 pounds overnight, or 5 pounds in one week</li> <li>▪ Have more swelling than usual</li> </ul>	<p>You might need to take extra medicine.</p> <p>Call your doctor's office to find out what you should do.</p> <p>Doctor name: _____</p> <p>Phone #: _____</p>
<p>If you:</p> <ul style="list-style-type: none"> <li>▪ Have trouble breathing when you are resting, or you can't stop coughing</li> <li>▪ Wheeze or feel chest tightness when you are resting</li> <li>▪ Wake up at night because you can't breathe well</li> <li>▪ Feel dizzy, very tired, or like you might fall</li> <li>▪ Gain or lose more than 5 pounds compared to your normal weight</li> </ul>	<p>You probably need to see a doctor right away.</p> <p>Call your doctor <b>now</b>.</p> <p>Doctor name: _____</p> <p>Phone #: _____</p>
<p>If you:</p> <ul style="list-style-type: none"> <li>▪ Have trouble breathing that does not get better no matter what you do</li> <li>▪ Feel like you can't breathe, or start to turn blue</li> <li>▪ Cough up frothy or pink saliva</li> <li>▪ Have pain or pressure in your chest, or you have other signs of a heart attack</li> <li>▪ Have a fast or uneven heartbeat that will not go away or makes you feel dizzy or lightheaded</li> <li>▪ Feel very confused</li> <li>▪ Faint</li> </ul>	<div style="text-align: center;">  </div> <p>Call 9-1-1 for an ambulance <b>right away</b></p>