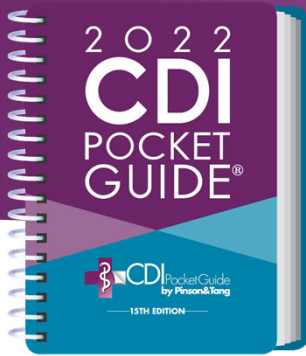


April 28, 2022



## CDI Pocket Guide® Heart Failure

**Pinson&Tang**

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1

## Pinson&Tang About Us



**Richard Pinson**  
MD, FACP, CCS

Dr. Richard Pinson is a physician, educator, administrator, and healthcare consultant. He practiced Internal Medicine and Emergency Medicine in Tennessee for over 20 years having board certification in both.



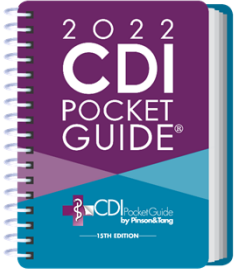
**Cynthia Tang**  
RHIA, CCS, CRC

Cynthia brings over 30 years of experience in coding and clinical documentation, health information management, and clinical resource management. For over 25 years she has traveled across the country implementing successful and sustainable coding and CDI programs in hundreds of hospitals.



2

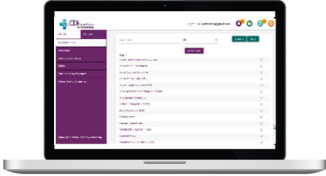
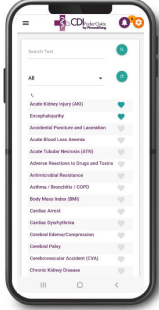
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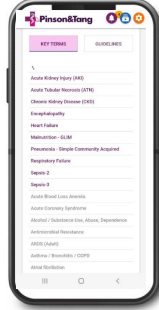
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3

## Heart Failure

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## Agenda

2022 CDI Pocket Guide®  
Page 137-141

**What is Heart Failure and Its Causes**

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**Diagnostic Tests, Clinical Indicators, and Medications**

**Classification of Heart Failure**

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**Case Examples**

**Q&A**

4

## Heart Failure

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Heart failure was the #1 reason for Medicare inpatient admissions:

DRGs	FY2010 Volumes	DRGs	FY2020 Volumes	
Heart Failure (291-293)	521,223	Sepsis (871-872)	766,338	+96%
Joint Replacement (469-470)	459,876	Heart Failure (291-293)	501,070	-6%
Sepsis (871-872)	390,201	Joint Replacement (469-470, 521-522)	437,193	-5%

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## Heart Failure

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- Systolic/Diastolic Heart Failure—CC status
  - CHF unspecified is not an MCC/CC—but is an HCC
- Acuity (acute, decompensated) of systolic/diastolic heart failure is necessary for MCC status
  - Acuity not needed when principal diagnosis
- Heart Failure as principal diagnosis is included in the CMS Readmission and Mortality quality measures

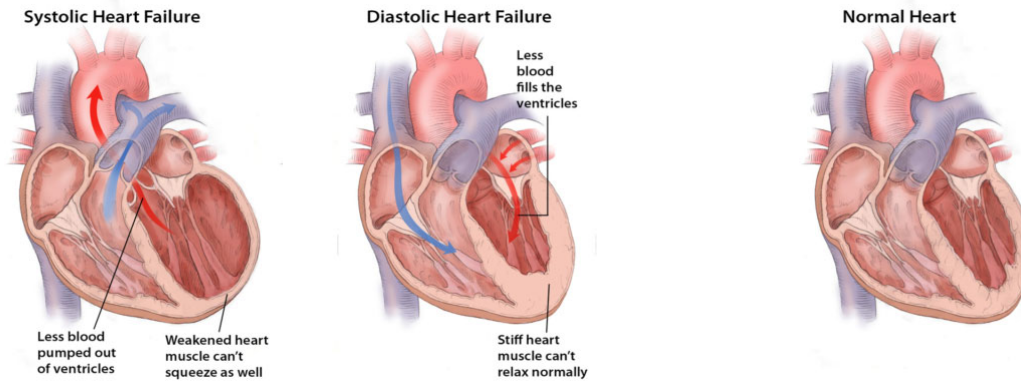
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## What is Heart Failure?

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## What is Heart Failure?

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Heart failure is when the heart isn't pumping as well as it should be. Caused by structural or functional abnormalities causing weakened heart muscle (systolic) or increased work of the heart muscle (diastolic) dysfunction

Systolic Causes	Diastolic Causes
Coronary artery disease (most common)	Hypertension increases the work of the left ventricular heart muscle (most common)
Myocardial infarction causes structural scar/loss of the myocardium	Pulmonary hypertension increases the work of the right ventricular heart muscle
Myocarditis weakens the heart muscle and impairs contraction	Aortic stenosis is a structural abnormality that narrows the aortic valve opening
Infiltrative disease (e.g., sarcoidosis, amyloidosis) can weaken the heart muscle	Infiltrative disease (e.g., sarcoidosis, amyloidosis) can stiffen the heart muscle

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## Definition of Heart Failure

### Framingham Criteria (1971)

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Major and Minor Criteria:

- 2 major criteria, or
- 1 major criterion + 2 minor criteria

Most common signs and symptoms:

- Exertional and nocturnal dyspnea or cough
- Orthopnea
- Neck vein distension
- Cardiomegaly / rales
- Peripheral edema
- Pulmonary edema

#### Major Criteria

- Paroxysmal nocturnal dyspnea or orthopnea
- Neck-vein distention
- Rales
- Cardiomegaly
- Acute pulmonary edema
- S3 gallop
- Increased venous pressure  $>16$  cm of water
- Circulation time  $\geq 25$  sec
- Hepatojugular reflux

#### Minor Criteria

- Ankle edema
- Night cough
- Dyspnea on exertion
- Hepatomegaly
- Pleural effusion
- Vital capacity  $\downarrow$   $\frac{1}{2}$  from maximum
- Tachycardia (rate of  $\geq 120$ /min)

#### Major or Minor Criterion

Weight loss  $\geq 4.5$  kg in 5 days in response to treatment

## Definition of Heart Failure

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### Universal Definition and Classification of Heart Failure (2021)

- A clinical syndrome with symptoms and or signs caused by a structural and/or functional cardiac abnormality and corroborated by elevated beta natriuretic peptide (BNP) levels and/or objective evidence of pulmonary or systemic congestion (edema).
- Classifies heart failure based on **left** ventricular ejection fraction (EF)
  - Ejection fraction is the percentage of blood pumped out of the heart with each beat

## Diagnostic Tests

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### BNP

BNP and pro-BNP are proteins produced by the heart. Normally have low levels circulating in the blood. High levels indicate heart failure:

- > 100 indicates Heart Failure
- > 500 indicates Acute Heart Failure

### Chest X-ray:

- Pulmonary edema
- Pleural effusion
- "Interstitial changes"
- Cardiomegaly

### Echocardiogram

Non-invasive procedure that assesses **heart muscle function and valves**.

Ejection fraction = function (percentage blood pumped out of the left ventricle with each beat)

- EF < 50% Indicates systolic, EF ≥ 50% indicates diastolic
  - Must have a diagnosis of HF
- EF < 40% = Indicates Systolic HF (even without symptoms)

Echo is normal with normal EF, but has symptomatic heart failure = diastolic

- **Heart valves:** stenosis (can lead to diastolic HF), mitral regurgitation (can lead to HF)

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## Heart Failure Clinical Indicators

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Indicator	Chronic	Acute or Decompensated
<b>Symptoms</b>	Asymptomatic or dyspnea (exertional, nocturnal), orthopnea, nocturnal cough	Exacerbation of symptoms: dyspnea (exertional, nocturnal), orthopnea, nocturnal cough
<b>Physical Exam</b>	No rales; chronic or no edema	Rales and/or increasing edema
<b>Medications</b>	PO Lasix, Bumex, Coreg, Spironolactone	IV medications (usually Lasix, Bumex)
<b>Chest Xray</b>	Normal, cardiomegaly, interstitial changes	Pulmonary edema/congestion or increasing (or new) pleural effusion
<b>BNP</b>	> 100	> 500
<b>Other</b>		Hypoxemia / need for supplemental oxygen

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## Medications

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Lasix (furosemide)	Most common for chronic and acute systolic heart failure
Bumex	Diuretic also commonly used
Aldactone* (spironactalone)	PO diuretic for both heart failure and hypertension
Atenolol*	Beta blocker also used for hypertension
Coreg (carvedilol)	Beta blocker used almost exclusively for heart failure
Digoxin	Used for systolic heart failure only (not diastolic). Also used to control ventricular rate in atrial fibrillation when LVEF <40%
Lisinopril, Enalapril*	ACE inhibitors that are also used for hypertension
Lopressor / Toprol (metoprolol)*	Beta blocker also used for hypertension

### Others:

Nitrates • Nitroglycerin (IV, transdermal, oral) • Imdur, Isordil	For severe systolic heart failure (usually not diastolic); dilates coronary arteries.
ARBs* Cozaar (losartan), Avapro (irbesartan), Diovan (valsartan), Micardis (telmisartan)	ARBs (angiotension receptor blockers) have similar effects to ACE inhibitors and used for hypertension.
Hydralazine*	Arterial vasodilator frequently combined with nitrates for severe systolic heart failure
Zaroxolyn (metolazone)*	For severe heart failure when unresponsive to other diuretics

\*These drugs are also used for hypertension.

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13

## Heart Failure Classification

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ICD-10 Classification Systolic/Diastolic (2002)	ICD-10 Codes	2021 Universal Heart Failure Classification Based on Ejection Fraction
<b>Systolic:</b> EF < 50%	150.20-150.23	HF with reduced EF (HFrEF): < 40% HF with mildly reduced EF (HFmrEF): 41-49%
<b>Diastolic:</b> EF ≥ 50% Echo may also show “diastolic dysfunction” parameters	150.30-150.33	HF with preserved EF (HFpEF): > 50%
<b>Combined Systolic/Diastolic</b> Heart failure with EF < 50% + evidence of diastolic dysfunction on echo	150.40-150.43	
Systolic or diastolic depending on the ejection fraction: < 50% = systolic, ≥ 50% = diastolic	150.22 150.32	HF with improved EF (HFimpEF): Baseline of < 40% with a > 10-point increase from baseline to > 40%.

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## Other Heart Failure

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Other Types	ICD-10 Code	Definition
Left Ventricular Heart failure	I50.1 (CC)	Failure of <b>left</b> ventricle only
Right Heart Failure	I50.81-	Failure of <b>right</b> ventricle only usually associated with pulmonary hypertension (pulmonary heart disease/ cor pulmonale)
Biventricular Heart Failure	I50.82	Failure of both right and left ventricles
High Output Heart Failure	I50.83	Low systemic vascular resistance and sometimes an increased metabolic rate that results in a high cardiac output state → cardiac “exhaustion”
End Stage Heart Failure	I50.84	End stage, near terminal

Need documentation of systolic or diastolic and acuity

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## Associated Conditions

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### ESRD (End Stage Renal Disease)

- ESRD patients admitted with CHF due to fluid overload (excessive fluid accumulation usually due to dialysis non-compliance), CHF is assigned as the principal diagnosis.
- Fluid overload should be assigned as principal diagnosis when a patient is admitted with fluid overload due to dialysis non-compliance, and the patient has
  - 1) No history or evidence of CHF, or
  - 2) History of CHF but the provider specifically indicates the fluid overload was non-cardiogenic in nature and/or the CHF was not decompensated.

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## Associated Conditions, continued

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### Pleural effusion

- Is not coded with heart failure unless
  - Separately evaluated or treated (e.g., CT scan, thoracentesis), or
  - Attributed to another condition

### Hypertension

- Patients admitted primarily for acute HF who also have hypertension
- PDX is I11.0, Hypertensive Heart Disease with Heart Failure
  - Acute systolic/diastolic heart failure becomes SDX = MCC

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## Query

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### Heart Failure Type

Documentation in the medical record indicates that this patient is being treated for **HEART FAILURE**.

- Echocardiogram reports EF =
- Meds:
- Other documentation and findings include:

Based on your medical judgment, can you further clarify in the progress notes the **Type** of the patient's heart failure/dysfunction for this admission such as: *[include only those that apply]*

- Systolic / HFrEF
- Diastolic / HFpEF
- Combined systolic/diastolic
- Other (please specify)
- None of the above / Not Applicable

In responding to this request, please exercise your independent professional judgment. The fact that a question is asked does not imply that your response should necessarily be any one particular condition listed, in which case please indicate your alternative diagnosis.

### Heart Failure Acuity (only if indicators for acute)

Documentation in the medical record indicates that this patient is being treated for **SYSTOLIC [OR DIASTOLIC] HEART FAILURE**.

- IV meds:
- CXR findings:
- BNP:
- Other documentation and findings include:

Based on your medical judgment, can you further clarify in the progress notes the **acuity** of the heart failure:

- Acute
- Exacerbation or decompensation
- Chronic
- Acute on chronic
- Other (please specify)
- None of the above / Not applicable

In responding to this request, please exercise your independent professional judgment. The fact that a question is asked does not imply that your response should necessarily be any one particular condition listed, in which case please indicate your alternative diagnosis.

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## Case #1: Acute Heart Failure?

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56-year-old admitted with CAD and hypertension for CABG on 1/24. PO #1: No acute events overnight. The patient will need ongoing diuresis. Remove his chest tubes today. Encouraged him to be up and mobile. 1/25 CXR: Development of a moderate right pneumothorax. Persistent small left pleural effusion and bibasilar atelectasis. Mild cardiomegaly.

**PN 1/26:** Patient with right pleural drain placed over the night for moderate pneumothorax; monitor with daily chest xrays. We will continue with this tube for 48 to 72 hours. He otherwise is stable this morning. Continue with gentle diuresis. Consider increasing his antihypertensive meds; work on his deep breathing and incentive spirometry. VSS, RR 16-18, No BNP.

**DC Summary (2/1):** Patient admitted with CAD and hypertension for CABG on 1/24. On postop day 2, the patient developed a moderate pneumothorax and was rather symptomatic. The tube remained in place for several days and he was monitored with daily chest x-rays. He required 1-2L of O2 to maintain an SpO2 >92% for the duration of his postoperative course. He was diuresed gently. **DS Diagnoses:**

- Coronary artery disease, S/P CABG x 3
- Moderate COPD
- Pneumothorax on right
- Acute on chronic diastolic CHF, NYHA class 1

DC meds: furosemide (LASIX) 40 mg tablet daily, metoprolol tartrate 25 mg tablet

Echo (1/12): 1. EF of 65-70%, 2. Normal LV systolic function, 3. Mild to moderate septal LV hypertrophy, 4. Normal cardiac chamber sizes with no significant valvular abnormalities noted.

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## Case #2: Principal Diagnosis?

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**H&P:** 67-year-old female w/ HTN presents to ED on 1/24 with worsening dyspnea and was subsequently admitted for acute on chronic resp failure, possibly combination of CHF and COPD exacerbation. SpO2 91% on 5L.

**Dx:** Acute on Chronic Respiratory Failure w/ Hypercapnia & Hypoxia, COPD w/ Exacerbation, suspect failure 2/2 COPD exacerbation vs pneumonia versus fluid overload versus PE. Status post Bumex 1 mg IV in ED, BNP 373.

Last ECHO 11/21: The left ventricle appears small. The left ventricular systolic function is hyperdynamic. The ejection fraction is 74%. CXR demonstrates volume overload with small pleural effusions.

**Plan:** BIPAP, Cardiac diet, 2 gram Na restriction, 2 Liter fluid restriction. Monitor and replace electrolytes: K > 4.0, Mg > 2.0. Monitor I's/O's. Consider repeat Bumex in a.m.

**CXR 1/24** (compared to previous xray): Persistent findings of CHF or volume overload. Emphysema and scarring again noted. Small pleural effusions and bibasilar atelectasis have increased.

**DS Discharge Diagnosis:**

- Acute on chronic respiratory failure with hypoxia.
- Acute on Chronic HFpEF and cor pulmonale with right ventricle dysfunction: resolved.

Plan: will continue to monitor for daily diuretics requirements; may require lasix as needed on discharge. Continue spironolactone 25mg po daily.

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## Case #3: Principal Diagnosis?

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Pt w PMHx HTN, portal HTN, right heart failure due to chronic thromboembolic pulmonary HTN presents to the ED for fluid overload. Recent admit for AKI. Pt presents with increasing swelling and weight gain of about 30 pounds in the last 3 weeks--took home Lasix with no improvement. Denies any chest pain, shortness of breath, nausea, vomiting, or abdominal pain. Currently on 6 L of oxygen at home normally. ProBNP 2700. HS troponin was 14. Hospitalist consulted due to pulmonary hypertension and increasing edema.

**H&P:** Chief complaint: Anasarca-like picture. Chest x-ray was negative for pulmonary edema. CT abdomen/pelvis: Bilateral pleural effusions and moderate amount of ascites, with accompanying body wall edema.

**A/P:** Acute on chronic cor pulmonale, Pulmonary hypertension, Acute on chronic hypoxic respiratory failure. Pt was placed on Lasix infusion, pulmonary consult.

**PNs:** Pt noted to have volume overload state. Acute on chronic hypoxic respiratory failure--2/2 to acute decompensated right heart failure related to pulmonary HTN, WHO group II, IV--on IV prostacyclin therapy; anasarca. Treated with Remodulin, initially attempted diuresis, placed on hemodialysis.

**Echo** x 3 to assess pulmonary HTN and reassess RV function:

1. Overall left ventricular ejection fraction estimated 50-55%.
2. Moderately enlarged right ventricle.
3. Low normal global left ventricular systolic function.
4. Right ventricular volume and pressure overload.
5. Moderately reduced RV systolic function.
6. Severe tricuspid regurgitation.
7. Moderately elevated pulmonary artery systolic pressure.

**DS:** Acute on chronic hypoxic respiratory failure, Multifactorial, suspect likely secondary to acute cor pulmonale/pulmonary hypertension with acute right heart failure. Underwent paracentesis with drainage of 9 L that improved his volume status.

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## Case #3: Principal Diagnosis, continued

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**Question:** In this case the patient presents with acute right sided heart failure and known pulmonary HTN, but without a PE. The pulmonary HTN is what is driving the right ventricular failure as it's uncontrolled and it's being treated, and the right ventricular failure is not due to left ventricular failure.

Acute cor pulmonale without PE codes to chronic cor pulmonale. Coding Clinic 2014 advice is to assign CHF as PDX for acute right heart failure w acute cor pulmonale due to severe pulmonary HTN. However, some acute cor pulmonale cases that have no PE should really be coded to cor pulmonale or pulmonary HTN as PDX, DRG 314, to show severity of the patient as they aren't a simple acute LV CHF.

In this case, we assigned pulmonary HTN as PDX given the pulmonary HTN was graded by WHO definition and sequencing is based on reason for admission. Can you speak to these types of cases?

I26.09: Other pulmonary embolism with acute cor pulmonale  
I27.81: Cor pulmonale (chronic), NOS  
*Excludes 1:* acute cor pulmonale (I26.0-)

I27.20: Pulmonary hypertension, unspecified  
I27.21: Secondary pulmonary arterial hypertension (Group 1)  
I27.22: Pulmonary htn due to left heart disease (Group 2)  
I27.23: Pulmonary htn due to lung diseases & hypoxia (Group 3)  
I27.24: Chronic thromboembolic pulmonary htn (Group 4)  
I27.29: Other secondary pulmonary hypertension

**Official Coding Guideline:** Pulmonary hypertension is classified to category I27, Other pulmonary heart diseases. For secondary pulmonary hypertension (I27.1, I27.2-), code also any associated conditions or adverse effects of drugs or toxins. The sequencing is based on the reason for the encounter (except for adverse effects of drugs).

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## Question #1

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Often our physicians will only document a portion of the echo with the EF noted.

Without becoming a cardiologist and studying how to read an echo I am unsure how to query from that.

Is the query based on the EF only?

Before querying regarding systolic or diastolic dysfunction, there must first be a diagnosis of heart failure.

If the patient does not have a diagnosis of heart failure, do not query regarding an ejection fraction on an echo.

With a diagnosis of heart failure, the ejection fraction will tell you whether the heart failure is systolic or diastolic.

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## Question #2

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Chart documentation:

- Acute Right HF with cor pulmonale
- HFpEF

Pt has traditional signs and symptoms of acute heart failure and treatment includes IV diuresis.

Can the HFpEF be coded as acute?

The documentation indicates the patient has acute right heart failure, but not acute left heart failure.

A query would be needed to clarify whether the HFpEF (left ventricular diastolic heart failure) is acute.

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## Question #3

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I've had many ECHOs with abnormal diastolic function or a graded diastolic dysfunction and have queried MDs for diastolic CHF. Many have disagreed.

What criteria do I need, to support indicators for diastolic heart failure, besides a dysfunction?

Any patient with significant hypertension could have abnormal or graded diastolic dysfunction on an echo, which may be just **hypertensive cardiomyopathy**.

Before querying regarding systolic or diastolic dysfunction, there must first be a diagnosis of heart failure.

25

## Question #4

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34-year-old female was diagnosed with Postpartum Cardiomyopathy and Acute Systolic CHF after the birth of her third child. Echo in the Postpartum period showed an EF of 35% with systolic dysfunction and she was managed for volume overload before discharge.

On a follow up visit her echo now reports an EF of 55% with no Systolic or Diastolic Dysfunction. The Heart Failure team discontinued her home Lasix dose but will still follow up with the patient periodically in clinic to check her echo and assess her fluid status.

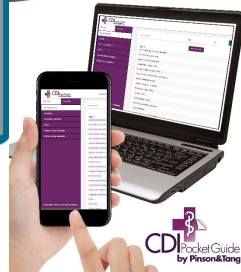
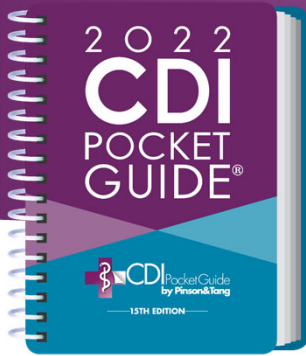
In this situation could we consider the CHF as resolved?

CHF was transient and would be considered resolved.

26

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Contact us: [contact@pinsonandtang.com](mailto:contact@pinsonandtang.com)



## Q & A THANK YOU!

All attendees will receive an email with a CEU evaluation link following the webinar

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