

QUESTION-BY-QUESTION INSTRUCTIONS FOR MMCC HEART FAILURE FINAL DIAGNOSIS FORM (HDA2)

HDA2, Version A, 6-28-2026
HDA2 QxQ

An MMCC Heart Failure Diagnosis Form (HDA2) is completed for each pre-2005 ARIC Heart Failure hospitalization that is sent to you as a MMCC Heart Failure (HF) reviewer. The goal of this review is to be **specific** rather than too sensitive. Please refer, as needed, to the MMCC Case Law Document (Section 5.3 Manual 3a) when completing this form.

When you get your case materials, check to see that all available information is included. Events will be hospital events only. The HDA2 form will be accompanied by copies of specific documents from the medical record. Medical record documents may include a discharge summary, echocardiogram reports, nuclear imaging reports, and catheterization reports as available.

Complete only one HDA2 for each event.

There are two sections to the HDA2 form. **Part A** contains administrative information and the Coordinating Center (CC) will provide some of the information for this section. **Part B** is to be completed by a MMCC reviewer based on the information provided. All cases will be reviewed by 2 MMCC members independently, with disagreements adjudicated by a third reviewer (events occurring in 2005).

The CC will provide a memo with a list of the EVENT_ID NUMBERS representing the cases that are sent to reviewers. The memo will also include the CONTACT NUMBER related to each EVENT_ID NUMBER.

The CC will specify the time period for completion and/or making changes to HDA2.

Instructions for Data Entry Key Field Screen

The web Data Management System (DMS) ID screen will require the EVENT_ID NUMBER as ID, "HDA2" as form, and a CONTACT NUMBER. Specific instructions for using the web DMS are detailed in the DMS User Manual.

Instructions for Part A. Administrative Information

- 1.a. The Batch Number and letter for this case will be assigned by the CC. Refer to the CC memo sent with the cases being reviewed for this number and letter. 'H' indicates a Heart Failure event.
- b. The CC will indicate the type of review. See memo accompanying your set of cases. The letter "O" indicates an original review, the letter "A" indicates an adjudication, and the letter "S" indicates a special review.

- c. Fill in the date of HDA2 completion.
- 2. Record the assigned code number of this reviewer. Your reviewer code number will be printed on the cover memo

Instructions for Part B. Review of HF Diagnosis

Items 4-9 are to be completed on your review medical record documents. For each, enter the letter that correctly characterizes the case under review.

4a-4c. Is there evidence of (past or present): (a.) Abnormal LV systolic function? (b.) Abnormal RV systolic function? (c.) LV diastolic dysfunction? Based on your review of the medical record documents provided, indicate either “Y”(Yes) if documentation indicates less than normal, “N” (No) if documentation indicates normal, or “U”(Unknown) if no data is available (i.e., not recorded). In general, use medical record documents related to that hospitalization as the first reference; however, records included by the abstractor that pre-date the hospitalization can be used to answer these items if there are no current related documents for that hospitalization. Of note, “borderline normal” = normal, “borderline abnormal” = abnormal, and “borderline” (not otherwise specified) = abnormal.

4a. A dilated left ventricle alone is not sufficient to select “Y”(YES)”. An estimated LVEF of $\leq 50\%$ is sufficient to define LV systolic dysfunction. If there is a discrepancy between a qualitative and quantitative description of LV contraction, use the LVEF.

General Algorithm for Question HDA24A		
Clinical Hx of reduced LVEF or of systolic HF	Systolic function on current ECHO	Answer to HDA24A
+	Unknown	Y
+	Normal	Y
+	Reduced	Y
“Normal EF”	Unknown	N
“Normal EF”	Normal	N
“Normal EF”	Reduced	Y
U	Unknown	U
U	Normal	N
U	Reduced	Y

4b. To select “Y (YES), there must a description that the right ventricular function or contraction is decreased. A dilated right ventricle alone is not sufficient to select “Y”(YES)”. If the only description of the right ventricle is “normal” and not otherwise specified (no mention of its function), then select “U (Unknown)”.

4c. Diastolic dysfunction must be explicitly described or documented in order to select “Y”(YES)”. Synonyms include “diastolic LV dysfunction”, “impaired LV relaxation”, “impaired LV compliance”, “impaired LV diastolic filling”, “reversed E-A ratio”, “late diastolic filling”, “stiff ventricle”, “abnormal mitral annulus tissue Doppler signal”, “pseudonormalization of transmitral Doppler flow”, “restrictive filling pattern”, “Grade 1 diastolic dysfunction”, “Grade 2 diastolic dysfunction”, and “Grade 3 diastolic dysfunction”. If left ventricular compliance or relaxation is normal, code “N (No)” for diastolic dysfunction (4c). A clinical description of diastolic dysfunction or diastolic heart failure is sufficient to select “Y (Yes)”, unless the clinical diagnosis is questionable. An echo report or other imaging report that describes diastolic function outranks a clinical description of diastolic dysfunction.

General Algorithm for Question HDA24C		
Clinical Hx of DD or diastolic HF	Diastolic function on current ECHO	Answer to HDA24C
+	Unknown	Y
+	Normal	N
+	Diastolic dysfunction	Y
-/u	Unknown	U
-/u	Normal	N
-/u	Diastolic dysfunction	Y

Answer to HDA26 (C vs D/E) may influence your choice of “Clinical Hx of DD or DHF” as suggested in QXQ text.

- Estimated LVEF (worst; related to this hospitalization): If there is a discrepancy within the available documentation, use clinical judgment to determine which is most accurate (e.g., description of abnormal LVEF (<50%) by history which is not confirmed by objective testing but an echocardiogram report documents normal LVEF ($\geq 50\%$) in a patient with no symptoms of heart failure, most likely LVEF is $\geq 50\%$). The most current echocardiogram with the lowest LVEF (from the hospitalization) should be used in making this assessment. For example, if there are records documenting different estimates of LVEF, take the most recent lowest LVEF (e.g., if old LVEF prior to that hospitalization is 10% but *current* hospitalization describes *lowest* LVEF is 40%, record the *lowest current* LVEF = 40%). However, if the abstractor has recorded a specific LV ejection fraction (LVEF) e.g., from the notes (patient with history of LVEF x%), but there are no supporting documents, then record “d”(Unknown). The rationale for this is that confirmation for an estimated LVEF should be documented by an official report to differentiate a historical LVEF versus an objectively documented LVEF. In general, the worst LVEF related to this hospitalization is, in your judgement, the LVEF that is related to this event/hospitalization. This can include LVEF documented within the previous 3 months, as long as there were no intervening event that could have altered LVEF .

Indicate either A ($\geq 50\%$), B (35-49%), C (<35%) or D (Unknown). If LVEF is described as “normal”, and no percentage is given, record A ($\geq 50\%$).

- Assign an overall heart failure diagnosis based on your clinical judgment (select only one). Refer to Manual 3a, Section 5.0 for a guide to ARIC HF diagnosis. Select only one of the following letters:

“A” (definite decompensated heart failure), i.e., decompensation clearly present based on available data (satisfies criteria for decompensation).

“B” (possible decompensated heart failure), i.e., decompensation possibly but not definitively present. A typical case of “possible” rather than “definite” would be

due to the presence of co-morbidity that could account for the acute symptoms (COPD exacerbation, for example). In some cases of chronic CHF, it may be difficult to tell whether the patient's status matches the baseline CHF status or indicates some deterioration. If in doubt, record "possible decompensated HF". In general, prefer "possible" whenever the evidence for decompensation (symptoms, signs, imaging) is subtle. Also, take the *totality* of the evidence provided. For example, a case of possible decompensated HF may be one that has a known history of CHF who has chest x-rays showing "active CHF", description of diuretic therapy, and an ICD-9 codes of 428, but there is no statement about decompensated heart failure in the discharge summary. (However, if a patient has such documentation with no known history of CHF, then the patient most likely has "definite decompensated heart failure" ["A"]).

"C" (chronic stable heart failure) i.e., no decompensation but patient has chronic heart failure. "Stable" also denotes "compensated" heart failure (not necessarily asymptomatic, but that patient's chronic HF symptoms are controlled with therapy and there is no evidence in augmentation of therapy for worsening HF during the hospitalization.) Note: This includes patients with asymptomatic heart failure (evidence of LV systolic dysfunction, i.e., EF < 50%, and no heart failure symptoms). Do NOT include: a history of transient LV/RV dysfunction if heart function is currently normal; or asymptomatic diastolic dysfunction alone.

"D" (heart failure unlikely), i.e., there is no HF, heart function is normal based on available documentation. Ideally, there should be some mention of normal heart function, but "heart failure unlikely" may be selected if there is sufficient data to make that inference in the absence of clear documentation.

"E" (unclassifiable), i.e., medical record documentation is missing; or there is no decompensated HF AND cannot differentiate between "chronic stable heart failure" and "heart failure unlikely". In general, this classification should be used sparingly (least frequently).

Note: If there are symptoms of heart failure only in the setting of a fatal cardiac arrest not due to an acute myocardial infarction, and the patient otherwise was not hospitalized for a heart failure exacerbation, do not count as "decompensated heart failure" ("A" or "B"). Instead, classify the case as "chronic stable heart failure" ("C") *if* the patient had known history of heart failure but was not hospitalized with decompensated heart failure except at time of arrest (e.g., patient with metastatic cancer who had known LVEF 15% from ischemic cardiomyopathy, but had an arrest while being evaluated for failure to thrive because of the cancer). If the patient has no history of heart failure, consider classifying the case as "D" or "E".

Some general guidelines:

(1) If debating between the following answers -

- If choosing between "B" (possible decompensated HF) and "C" (chronic stable HF), favor "B".

- If choosing between “A” (definite decompensated HF) and “B”, favor B.
- If choosing between “B” and “E” (unclassifiable), favor “E”.
- If choosing between “B” and “D”, favor “E”.
- If choosing between “C” and “D” (HF unlikely) [and “E”], favor “E”.

(2) Not all disagreements are equally important.

- Disagreement between “D” and “E” is not that important.
- Disagreement between “C” and “B” is very important.
- Disagreement between “C” and “A” is very important.
- Disagreement between “A” and “B” is not that important.

(3) The distinction between “C” and “D” (or “C” and “E”) is important only for the Cohort (since "chronic stable HF" will not be counted in community analysis). Therefore, do not agonize about this choice unless the case is a cohort member.

If “A” or “B”, is selected, answer item 6.a. If “C”, “D” or “E” is selected, skip to item 8.

- a. Was definite or possible decompensated heart failure present at admission? After review of the medical record documents pertinent to this event, indicate if there was decompensated heart failure at admission. Indicate either “Y”(Yes), “N” (No) or “U”(Unknown).
7. Was this event fatal? After review of the medical record documents provided, indicate either “Y”(Yes), or “N” (No). If “Y” is selected, answer Item 7a. If “N” (no) is selected skip to Item 8.
- a. Was decompensated heart failure the primary cause of death? After review of the medical record documents provided, indicate either “Y”(Yes), “N” (No) or “U”(Unknown). Note that “primary” in this context is not synonymous with underlying cause from a nosologist’s point of view. Primary cause of death for the purpose of item 7a is a decision based on your clinical review of the provided materials that heart failure was the most important, or the principal, chief, crucial, or primary factor leading to death. To answer “Yes” (decompensated HF was the primary cause of death), you need to have the following idea in mind: the patient would not have died if decompensated HF were absent. If so, record “Y” (Yes) to item 7a. If it is clear that the person died and also had heart failure but heart failure was not a principal or primary factor in causing death record “N” (No). If not sure, record “U” (Unknown).
8. Incident/Prevalent: Is there a history of:
- a. heart failure diagnosis listed? After review of the medical record documents provided, indicate either “Y”(Yes), or “N” (No/Unsure). Review the available notes for evidence of a prior diagnosis of heart failure. “Prior” refers to a physician’s diagnosis prior to the onset or worsening of symptoms that brought

the patient to the hospital. Record “No/Unsure” if the patient does not have a history of heart failure or there is no mention of previous heart failure in the medical record. History is defined as more than 1 month prior to the event for patients who have new or worsening HF symptoms. If the record indicates that the only previous heart failure was within 1 month, this would not be considered as a history of heart failure, UNLESS the patient was *hospitalized* for decompensated HF in the past 1 month and is currently hospitalized with either acute or chronic HF. If records only mention ‘volume overload’, do not use as a synonym for heart failure.

- b. prior hospitalization for heart failure? After review of the medical record documents provided, indicate either “Y”(Yes), or “N” (No/Unsure). Review the available notes for evidence of a prior hospitalization for heart failure. If the patient was previously hospitalized for another problem and management for heart failure was changed or initiated, record “Yes”. If the patient was admitted for heart failure at another hospital and transferred to the current hospital within 1 month, record “No/Unsure”. In general, record “No/Unsure” if heart failure is newly diagnosed during this hospitalization.
9. Comments. Add any brief comment(s) about this review. These comments will be made available to the adjudicator.