



National Hospital Quality
Measures

Measure Definitions

***Excerpts from the Specifications Manual for
National Hospital Quality Measures for
Heart Failure Measure Set***

***Applicable to Cases Discharged January 1, 2012
through June 31, 2012***

Document Information

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HEART FAILURE NATIONAL HOSPITAL INPATIENT QUALITY MEASURES

Set Measure ID #	Measure Short Name
HF-1	Discharge Instructions
HF-2	Evaluation of LVS Function
HF-3	ACEI or ARB for LVSD

HF DATA ELEMENT LIST

General Data Element Name	Collected For:
<i>Admission Date</i>	All Records
<i>Birthdate</i>	All Records
<i>Discharge Date</i>	All Records
<i>First Name</i>	All Records ¹
<i>Hispanic Ethnicity</i>	All Records ¹
<i>ICD-9-CM Other Diagnosis Codes</i>	All Records
<i>ICD-9-CM Other Procedure Codes</i>	All Records (Used in Algorithm for All HF Measures)
<i>ICD-9-CM Other Procedure Dates</i>	All Records
<i>ICD-9-CM Principal Diagnosis Code</i>	All Records
<i>ICD-9-CM Principal Procedure Code</i>	All Records (Used in Algorithm for All HF Measures)
<i>ICD-9-CM Principal Procedure Date</i>	All Records
<i>Last Name</i>	All Records ¹
<i>Patient HIC #</i>	All Records Collected by CMS for patients with a standard HIC#
Patient Identifier	All Records¹
<i>Payment Source</i>	All Records
<i>Physician 1</i>	Optional for All Records ¹
<i>Physician 2</i>	Optional for All Records ¹
<i>Postal Code</i>	All Records ¹
<i>Race</i>	All Records ¹
<i>Sample</i>	Used in transmission of the Joint Commission's aggregate data file and the Hospital Clinical Data file ²
<i>Sex</i>	All Records

Algorithm Output Data Element Name	Collected For:
<i>Measure Category Assignment</i>	Used in the calculation of the Joint Commission's aggregate data and in the transmission of the Hospital Clinical Data file ^{2,3}

HF DATA ELEMENT LIST

HF Data Element Name	Collected For:
<i>ACEI Prescribed at Discharge</i>	HF-3
<i>ARB Prescribed at Discharge</i>	HF-3
<i>Clinical Trial</i>	All HF Measures
<i>Comfort Measures Only</i>	All HF Measures
<i>Discharge Disposition</i>	All HF Measures
<i>Discharge Instructions Address Activity</i>	HF-1
<i>Discharge Instructions Address Diet</i>	HF-1
<i>Discharge Instructions Address Follow-up</i>	HF-1
<i>Discharge Instructions Address Medications</i>	HF-1
<i>Discharge Instructions Address Symptoms Worsening</i>	HF-1
<i>Discharge Instructions Address Weight Monitoring</i>	HF-1
<i>LVF Assessment</i>	HF-2
<i>LVSD</i>	HF-3
<i>Reason for No ACEI and No ARB at Discharge</i>	HF-3

-
- ¹ CMS Only
 - ² Transmission Data Element
 - ³ The Joint Commission ONLY

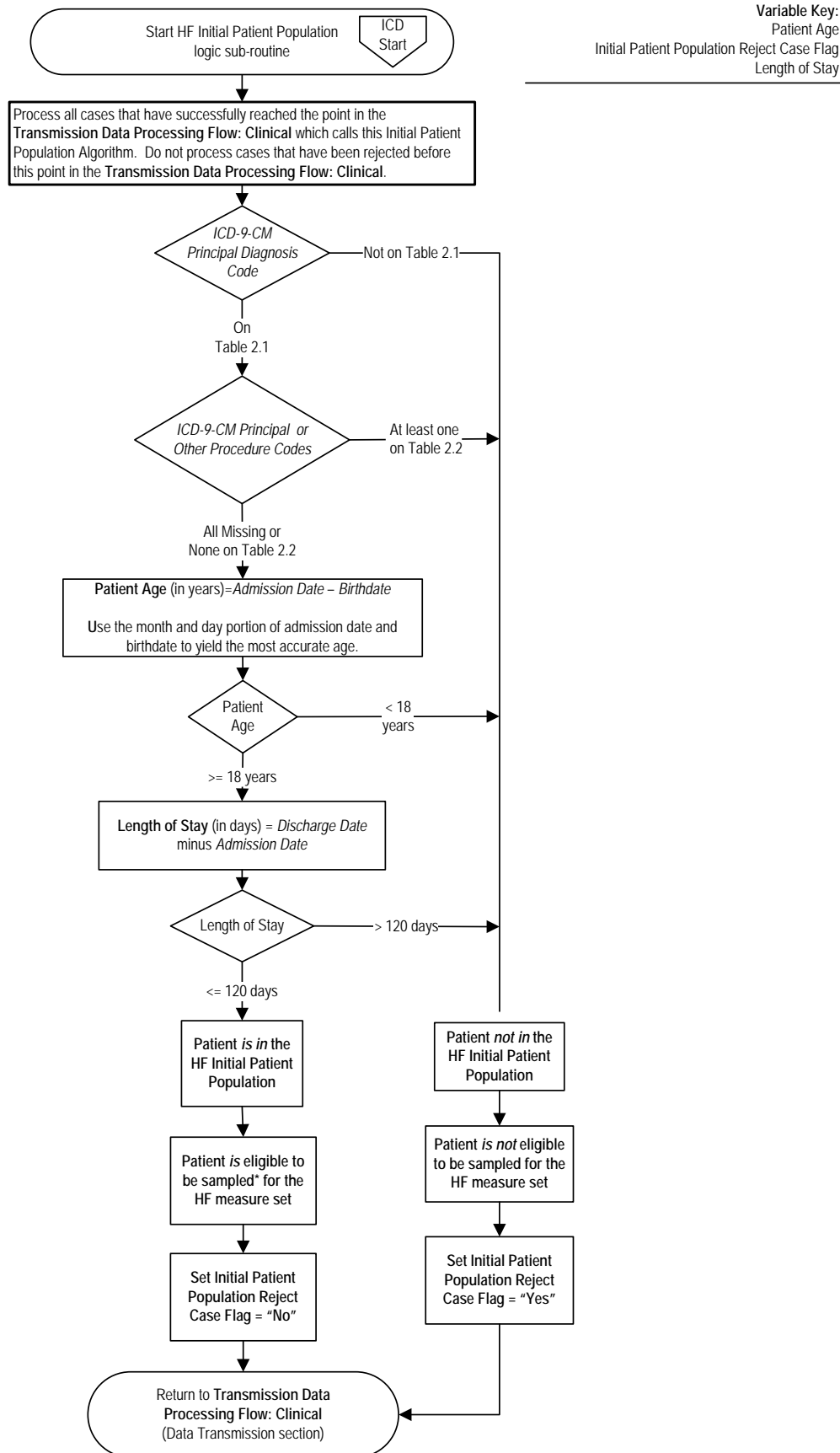
Heart Failure (HF) Initial Patient Population

The population of the HF measure set is identified using 6 data elements:

- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*
- *ICD-9-CM Other Procedure Codes*
- *Admission Date*
- *Birthdate*
- *Discharge Date*

Patients admitted to the hospital for inpatient acute care with an *ICD-9-CM Principal Diagnosis Code* for HF as defined in Appendix A, Table 2.1, no *ICD-9-CM Principal or Other Procedure Code* of Left Ventricular Assistive Device (LVAD) or Heart Transplant as defined in Appendix A, Table 2.2, a Patient Age (*Admission Date* minus *Birthdate*) greater than or equal to 18 years, and a Length of Stay (*Discharge Date* minus *Admission Date*) less than or equal to 120 days are included in the HF Initial Patient Population and are eligible to be sampled.

HF Initial Patient Population Algorithm



Heart Failure (HF) Initial Patient Population Algorithm

Variable Key: Patient Age, Initial Patient Population Reject Case Flag, and Length of Stay

1. Start HF Initial Patient Population logic sub-routine. Process all cases that have successfully reached the point in the Transmission Data Processing Flow: Clinical which calls this Initial Patient Population Algorithm. Do not process cases that have been rejected before this point in the Transmission Data Processing Flow: Clinical.
2. Check ICD-9-CM Principal Diagnosis Code
 - a. If the ICD-9-CM Principal Diagnosis Code is not on Table 2.1, the patient is not in the HF Initial Patient Population and is not eligible to be sampled for the HF measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
 - b. If the ICD-9-CM Principal Diagnosis Code is on Table 2.1, continue processing and proceed to ICD-9-CM Principal or Other Procedure Codes.
3. Check ICD-9-CM Principal or Other Procedure Codes
 - a. If at least one of the ICD-9-CM Principal or Other Procedure Codes is on Table 2.2, the patient is not in the HF Initial Patient Population and is not eligible to be sampled for the HF measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
 - b. If all of the ICD-9-CM Principal or Other Procedure Codes is missing or none are on Table 2.2, continue processing and proceed to the patient age calculation.
4. Calculate Patient Age. Patient Age, in years, is equal to the Admission Date minus the Birthdate. Use the month and day portion of admission date and birthdate to yield the most accurate age.
5. Check Patient Age
 - a. If the Patient Age is less than 18 years, the patient is not in the HF Initial Patient Population and is not eligible to be sampled for the HF measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
 - b. If the Patient Age is greater than or equal to 18 years, continue processing and proceed to Length of Stay Calculation.

6. Calculate the Length of Stay. Length of Stay, in days, is equal to the Discharge Date minus the Admission Date.
7. Check Length of Stay
 - a. If the Length of Stay is greater than 120 days, the patient is not in the HF Initial Patient Population and is not eligible to be sampled for the HF measure set. Set the Initial Patient Population Reject Case Flag to equal Yes. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.
 - b. If the Length of Stay is less than or equal to 120 days, the patient is in the HF Initial Patient Population and is eligible to be sampled for the HF measure set. Set Initial Patient Population Reject Case Flag to equal No. Return to Transmission Data Processing Flow: Clinical in the Data Transmission section.

HF Sample Size Requirements

Hospitals that choose to sample have the option of sampling quarterly or sampling monthly. A hospital may choose to use a larger sample size than is required. Hospitals whose Initial Patient Population size is less than the minimum number of cases per quarter for the measure set cannot sample. Hospitals that have five or fewer HF discharges (both Medicare and non-Medicare combined) in a quarter are not required to submit HF patient level data to the QIO Clinical Warehouse and Joint Commission's Data Warehouse.

Regardless of the option used, hospital samples must be monitored to ensure that sampling procedures consistently produce statistically valid and useful data. Due to exclusions, hospitals selecting sample cases **MUST** submit **AT LEAST** the minimum required sample size.

The following sample size tables for each option automatically build in the number of cases needed to obtain the required sample sizes. For information concerning how to perform sampling, refer to the Population and Sampling Specifications section in this manual.

Quarterly Sampling

Hospitals performing quarterly sampling for HF must ensure that its Initial Patient Population and sample size meet the following conditions:

Quarterly Sample Size Based on Initial Patient Population Size for the HF Measure Set

Hospital's Measure

Average Quarterly Initial Patient Population Size "N"	Minimum Required Sample Size "n"
≥ 1516	304
381 - 1515	20% of Initial Patient Population size
76 - 380	76
6 - 75	No sampling; 100% Initial Patient Population required
0 - 5	Submission of patient level data is encouraged but not required: <ul style="list-style-type: none"> • CMS: if submission occurs, 1 – 5 cases of the Initial Patient Population may be submitted • The Joint Commission: if submission occurs, 100% Initial Patient Population required

Monthly Sampling

Hospitals performing monthly sampling for HF must ensure that its Initial Patient Population and sample size meet the following conditions:

Monthly Sample Size Based on Initial Patient Population Size for the HF Measure Set

Hospital's Measure

Average Monthly Initial Patient Population Size "N"	Minimum Required Sample Size "n"
≥ 506	102
131 - 505	20% of Initial Patient Population size
26 - 130	26
< 26	No sampling; 100% Initial Patient Population required

Sample Size Examples

- **Quarterly sampling:**
 - The HF Initial Patient Population size for a hospital has been 500 patients per quarter during the past year. The required quarterly sample size would be 100 (twenty percent of 500) heart failure patients per quarter -- as this number is smaller than the maximum condition (i.e., 304 cases) and larger than the minimum condition (i.e., 76 cases).
 - A hospital's HF Initial Patient Population size is 1,482 patients during the third quarter. The required sample size is 20% of the patient population or 297 cases for the quarter (twenty percent of 1,482 equals 296.4 rounded to the next highest whole number equals 297).
 - A hospital's HF Initial Patient Population size is 5 patients during the first quarter. Submission of patient level data is not required. If the hospital chooses to submit patient level data:
 - CMS: the quarterly sample size would be 1 – 5 cases for the quarter.
 - The Joint Commission: the required quarterly sample size would be 100% of the patient population or 5 cases for the quarter.
- **Monthly sampling**
 - A hospital's HF Initial Patient Population size is 25 patients during March. Since this is less than the minimum condition (i.e., 26 cases), no sampling is allowed or 100% of the patient population of 25 cases is required.
 - A hospital's HF Initial Patient Population size is 503 patients during July. The required sample size is 20% of the patient population or 101 cases for the month (twenty percent of 503 equals 100.6 rounded to the next highest whole number equals 101).

NQF-ENDORSED VOLUNTARY CONSENSUS STANDARDS FOR HOSPITAL CARE

Measure Information Form

Measure Set: Heart Failure (HF)

Set Measure ID#: HF-1

Performance Measure Name: Discharge Instructions

Description: Heart failure patients discharged home with written instructions or educational material given to patient or caregiver at discharge or during the hospital stay addressing **all** of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring, and what to do if symptoms worsen.

Rationale: Patient non-compliance with diet and medications is an important reason for changes in clinical status. Health care professionals should ensure that patients and their families understand their dietary restrictions, activity recommendations, prescribed medication regimen, and the signs and symptoms of worsening heart failure. National guidelines strongly support the role of patient education (Jessup, 2009 and HFSA, 2010).

Type of Measure: Process

Improvement Noted As: An increase in the rate

Numerator Statement: Heart failure patients with documentation that they or their caregivers were given written discharge instructions or other educational material addressing **all** of the following:

1. activity level
2. diet
3. discharge medications
4. follow-up appointment
5. weight monitoring
6. what to do if symptoms worsen

Included Populations: Not Applicable

Excluded Populations: None

Data Elements:

- *Discharge Instructions Address Activity*
- *Discharge Instructions Address Diet*
- *Discharge Instructions Address Follow-up*
- *Discharge Instructions Address Medications*
- *Discharge Instructions Address Symptoms Worsening*
- *Discharge Instructions Address Weight Monitoring*

Denominator Statement: Heart failure patients discharged home

Included Populations: Discharges with:

- An *ICD-9-CM Principal Diagnosis Code* for heart failure as defined in Appendix A, Table 2.1

AND

- A discharge to home, home care, or court/law enforcement

Excluded Populations:

- Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code for LVAD and heart transplant as defined in Appendix A, Table 2.2)
- Patients less than 18 years of age
- Patients who have a Length of Stay greater than 120 days
- Patients enrolled in clinical trials
- Patients with *Comfort Measures Only* documented

Data Elements:

- *Admission Date*
- *Birthdate*
- *Clinical Trial*
- *Comfort Measures Only*
- *Discharge Date*
- *Discharge Disposition*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: The data elements for each of the six discharge instruction elements provide the opportunity to assess each component individually. However, completion of all six instruction categories is required for this composite measure.

Sampling: Yes, please refer to the measure set specific sampling requirements and for additional information see the Population and Sampling Specifications Section.

Data Reported as: Aggregate rate generated from count data reported as a proportion

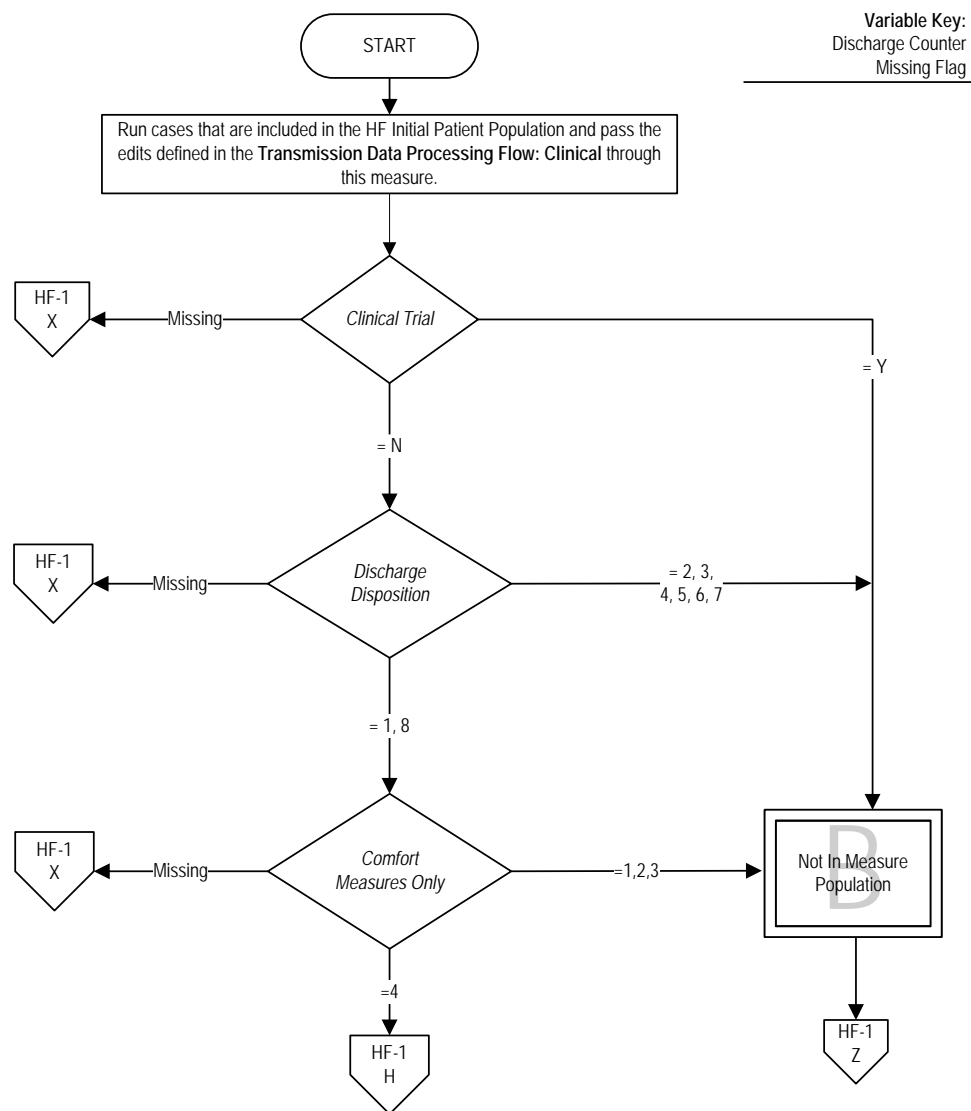
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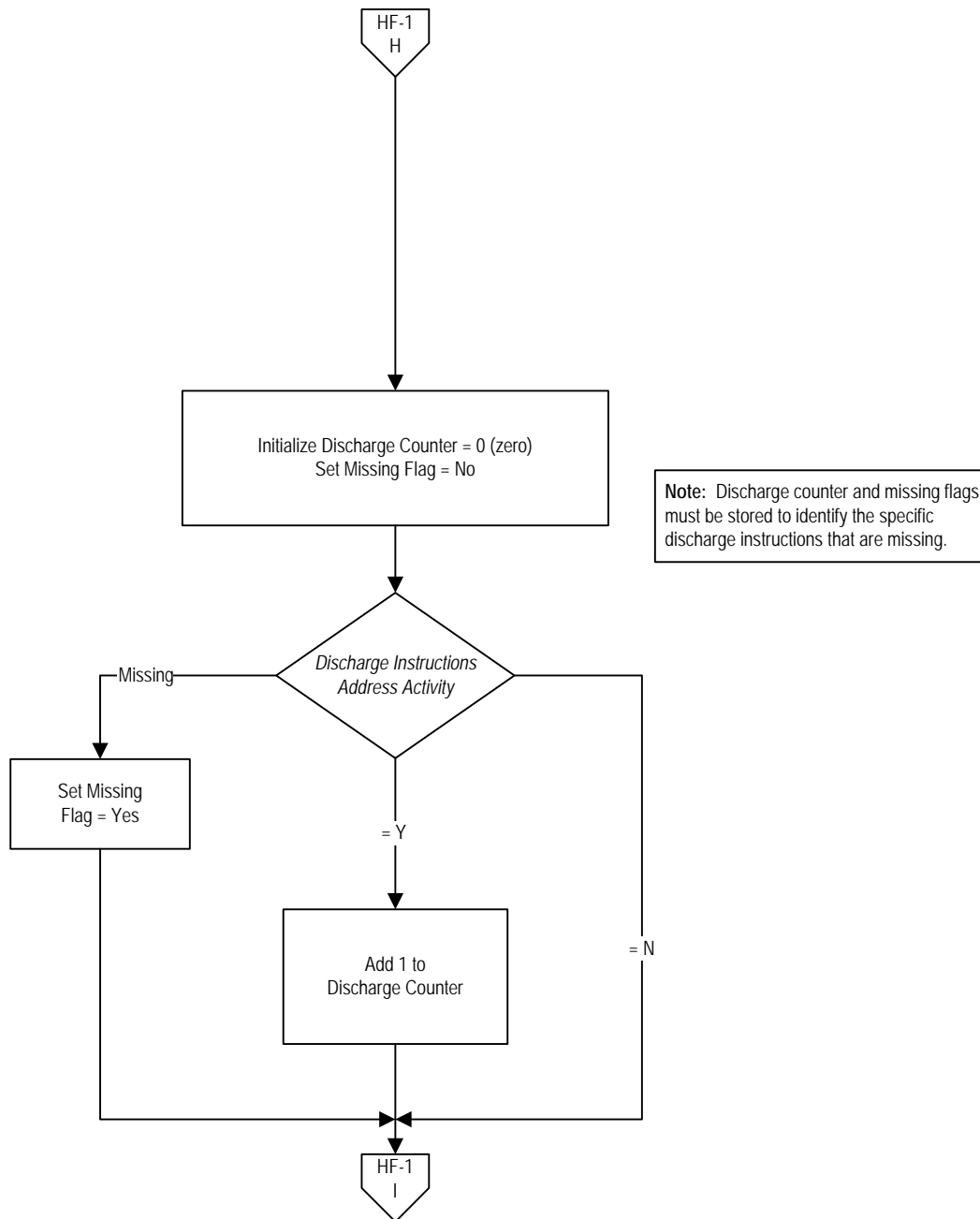
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- Lindenfeld J, Albert NM, Boehmer JP, Collins SP, Ezekowitz JA, Givertz MM, et al. Executive Summary: HFSA 2010 Comprehensive Heart Failure Practice Guideline. *J Card Fail* 2010; 16:475-539.

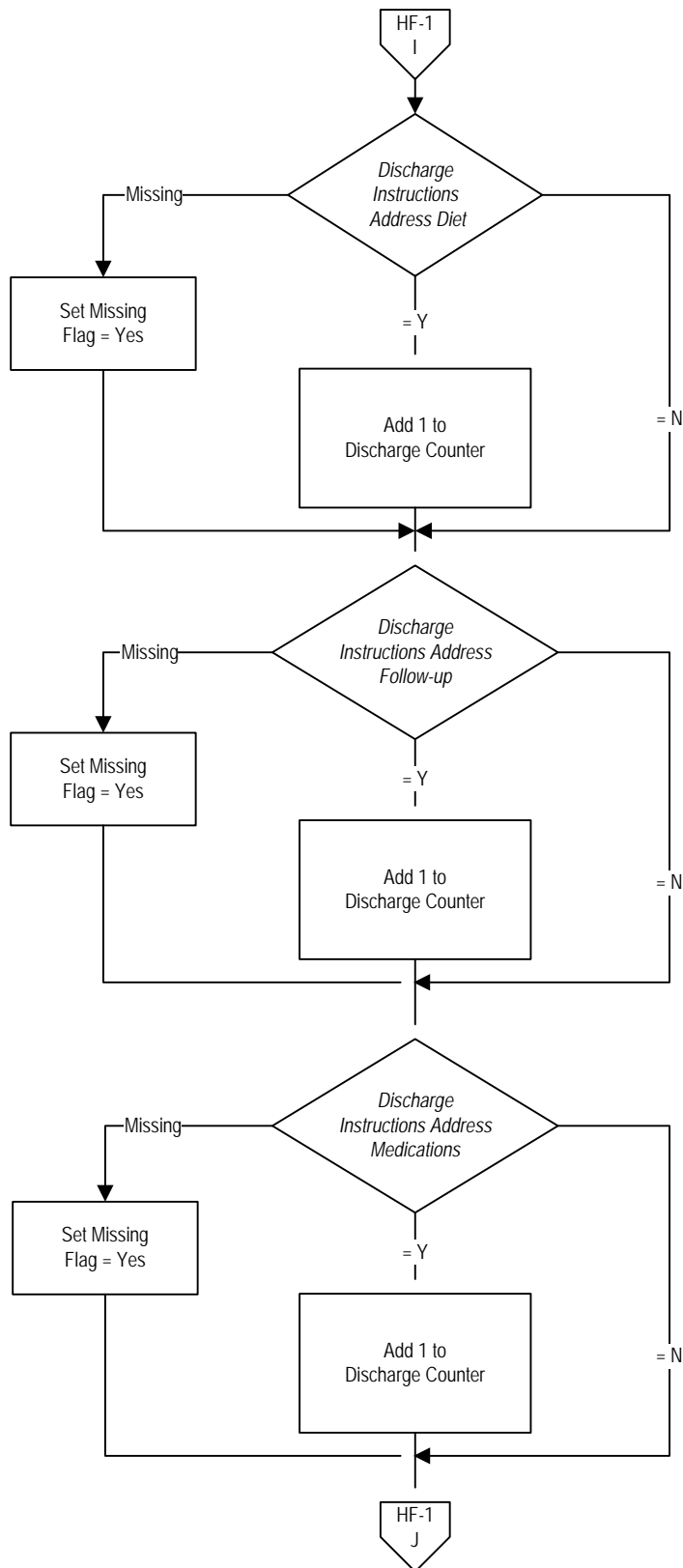
HF-1: Discharge Instructions

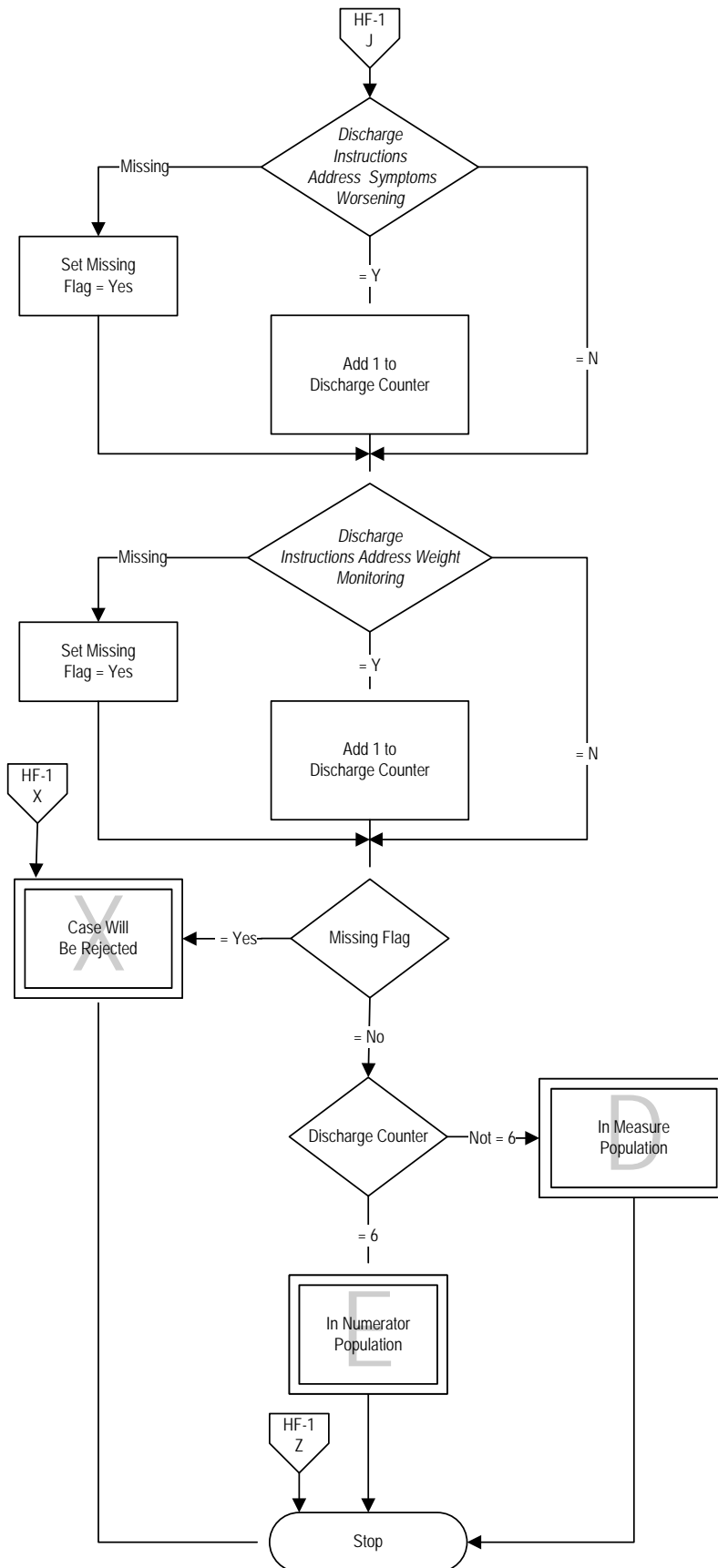
Numerator: Heart failure patients with documentation that they or their caregivers were given written discharge instructions or other educational material addressing all of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring and what to do if symptoms worsen.

Denominator: Heart failure patients discharged home.









Heart Failure (HF)-1: Discharge Instructions

Numerator: Heart failure patients with documentation that they or their caregivers were given written discharge instructions or other educational material addressing all of the following: activity level, diet, discharge medications, follow-up appointment, weight monitoring and what to do if symptoms worsen.

Denominator: Heart failure patients discharged to home.

Variable Key: Discharge Counter and Missing Flag

1. Start processing. Run cases that are included in the Heart Failure Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Check Clinical Trial
 - a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
 - c. If Clinical Trial equals No, continue processing and proceed to Discharge Disposition.
3. Check Discharge Disposition
 - a. If Discharge Disposition is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Discharge Disposition equals 2, 3, 4, 5, 6 or 7, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
 - c. If Discharge Disposition equals 1 or 8, continue processing and proceed to Comfort Measures Only.
4. Check Comfort Measures Only
 - a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Comfort Measures Only equals 1, 2 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
 - c. If Comfort Measures Only equals 4, continue processing.

5. Initialize Discharge Counter to equal zero. Set Missing Flag to equal No. Note: Discharge counter and missing flags must be stored to identify the specific discharge instructions that are missing. Continue processing and proceed to Discharge Instructions Address Activity.
6. Check Discharge Instructions Address Activity
 - a. If Discharge Instructions Address Activity is missing, set the Missing Flag to equal Yes. Continue processing and proceed to Discharge Instructions Address Diet.
 - b. If Discharge Instructions Address Activity equals No, continue processing and proceed to Discharge Instructions Address Diet.
 - c. If Discharge Instructions Address Activity equals Yes, add one to the Discharge Counter. Continue processing and proceed to Discharge Instructions Address Diet.
7. Check Discharge Instructions Address Diet
 - a. If Discharge Instructions Address Diet is missing, set the Missing Flag to equal Yes. Continue processing and proceed to Discharge Instructions Address Follow-up.
 - b. If Discharge Instructions Address Diet equals No, continue processing and proceed to Discharge Instructions Address Follow-up.
 - c. If Discharge Instructions Address Diet equals Yes, add one to the Discharge Counter. Continue processing and proceed to Discharge Instructions Address Follow-up.
8. Check Discharge Instructions Address Follow-up
 - a. If Discharge Instructions Address Follow-up is missing, set the Missing Flag to equal Yes. Continue processing and proceed to Discharge Instructions Address Medications.
 - b. If Discharge Instructions Address Follow-up equals No, continue processing and proceed to Discharge Instructions Address Medications.
 - c. If Discharge Instructions Address Follow-up equals Yes, add one to the Discharge Counter. Continue processing and proceed to Discharge Instructions Address Medications.
9. Check Discharge Instructions Address Medications
 - a. If Discharge Instructions Address Medications is missing, set the Missing Flag to equal Yes. Continue processing and proceed to Discharge Instructions Address Symptoms Worsening.
 - b. If Discharge Instructions Address Medications equals No, continue processing and proceed to Discharge Instructions Address Symptoms Worsening.

- c. If Discharge Instructions Address Medications equals Yes, add one to the Discharge Counter. Continue processing and proceed to Discharge Instructions Address Symptoms Worsening.
- 10. Check Discharge Instructions Address Symptoms Worsening
 - a. If Discharge Instructions Address Symptoms Worsening is missing, set the Missing Flag to equal Yes. Continue processing and proceed to Discharge Instructions Address Weight Monitoring.
 - b. If Discharge Instructions Address Symptoms Worsening equals No, continue processing and proceed to Discharge Instructions Address Weight Monitoring.
 - c. If Discharge Instructions Address Symptoms Worsening equals Yes, add one to the Discharge Counter. Continue processing and proceed to Discharge Instructions Address Weight Monitoring.
- 11. Check Discharge Instructions Address Weight Monitoring
 - a. If Discharge Instructions Address Weight Monitoring is missing, set the Missing Flag to equal Yes. Continue processing and proceed to Missing Flag check.
 - b. If Discharge Instructions Address Weight Monitoring equals No, continue processing and proceed to Missing Flag check.
 - c. If Discharge Instructions Address Weight Monitoring equals Yes, add one to the Discharge Counter. Continue processing and proceed to Missing Flag check.
- 12. Check Missing Flag
 - a. If Missing Flag equals Yes, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Missing Flag equals No, continue processing and proceed to Discharge Counter.
- 13. Check Discharge Counter
 - a. If Discharge Counter is not equal to six, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
 - b. If Discharge Counter equals six, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.

NQF-ENDORSED VOLUNTARY CONSENSUS STANDARDS FOR HOSPITAL CARE

Measure Information Form

Measure Set: Heart Failure (HF)

Set Measure ID#: HF-2

Performance Measure Name: Evaluation of LVS Function

Description: Heart failure patients with documentation in the hospital record that left ventricular systolic (LVS) function was evaluated before arrival, during hospitalization, or is planned for after discharge.

Rationale: Appropriate selection of medications to reduce morbidity and mortality in heart failure requires the identification of patients with impaired left ventricular systolic function. National guidelines advocate the evaluation of left ventricular systolic function as the single most important diagnostic test in the management of all patients with heart failure (Jessup, 2009 and HFSA, 2010).

Type of Measure: Process

Improvement Noted As: An increase in the rate

Numerator Statement: Heart failure patients with documentation in the hospital record that LVS function was evaluated before arrival, during hospitalization, or is planned for after discharge.

Included Populations: Not Applicable

Excluded Populations: None

Data Elements:
LVF Assessment

Denominator Statement: Heart failure patients.

Included Populations:
Discharges with an *ICD-9-CM Principal Diagnosis Code* for heart failure as defined in Appendix A, Table 2.1

Excluded Populations:

- Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code for LVAD and heart transplant as defined in Appendix A, Table 2.2)
- Patients less than 18 years of age
- Patients who have a Length of Stay greater than 120 days
- Patients enrolled in clinical trials
- Patients discharged to another hospital
- Patients who left against medical advice
- Patients who expired
- Patients discharged to home for hospice care
- Patients discharged to a health care facility for hospice care
- Patients with *Comfort Measures Only* documented
- Patients with reasons documented by a physician/advanced practice nurse/physician assistant for no LVS function evaluation

Data Elements:

- *Admission Date*
- *Birthdate*
- *Clinical Trial*
- *Comfort Measures Only*
- *Discharge Date*
- *Discharge Disposition*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*
- *LVF Assessment*

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: None

Sampling: Yes, please refer to the measure set specific sampling requirements and for additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion

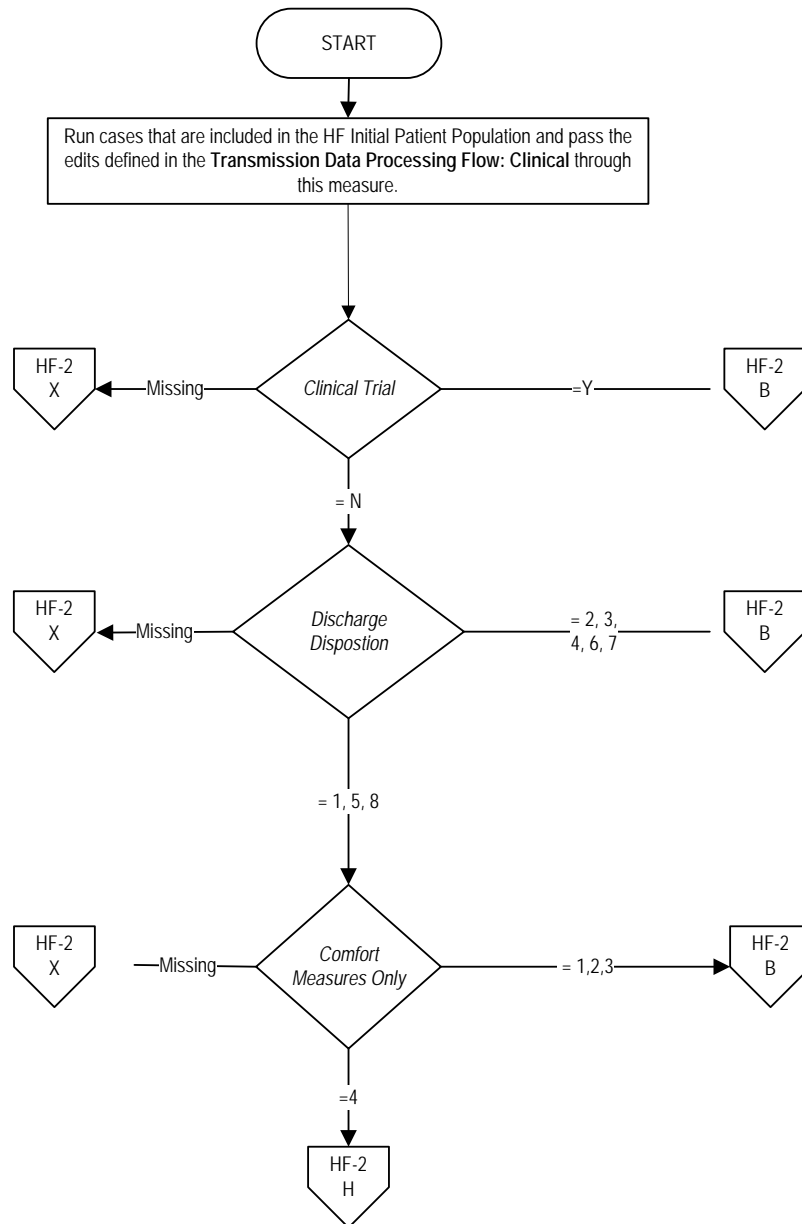
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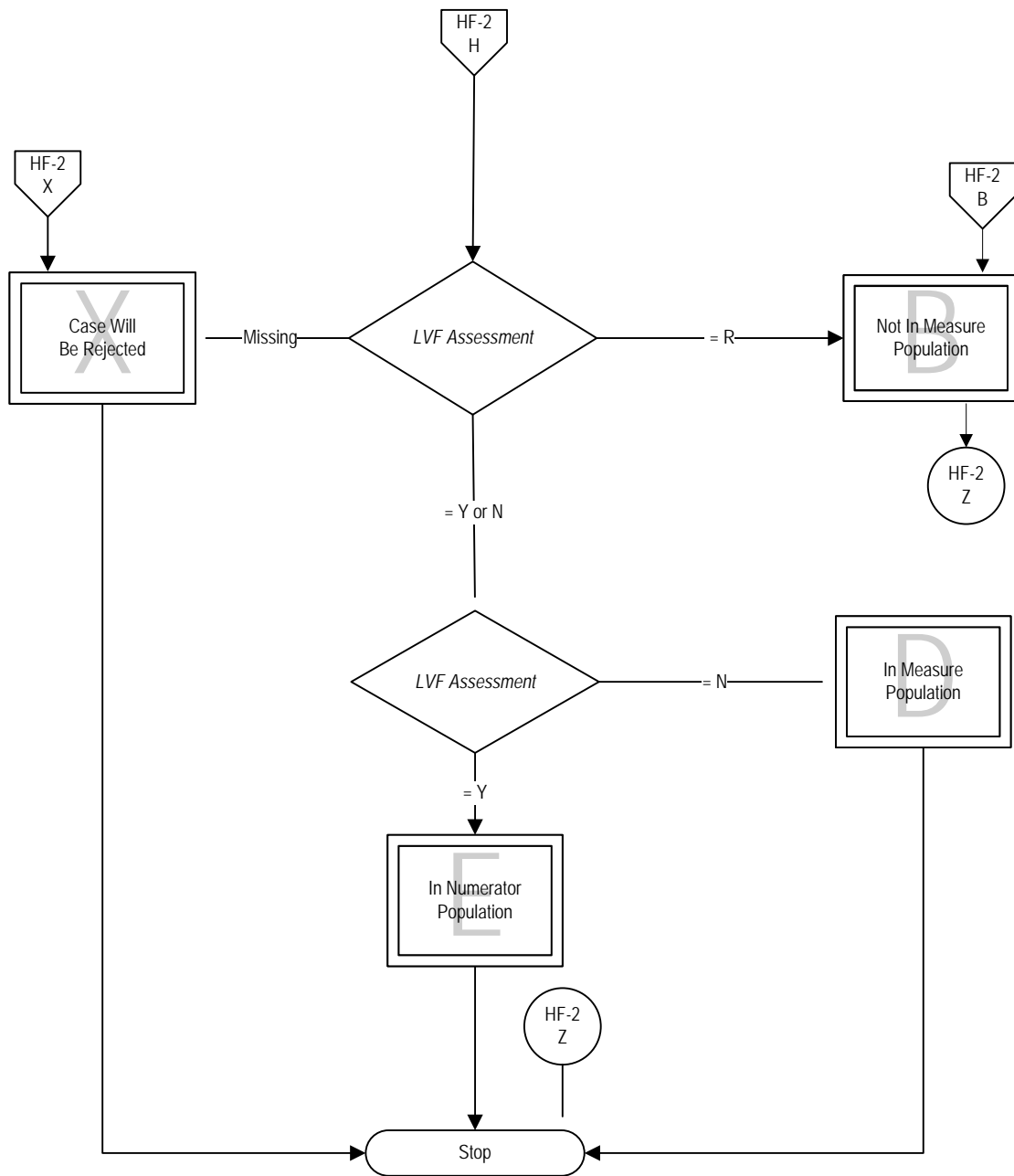
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- Lindenfeld J, Albert NM, Boehmer JP, Collins SP, Ezekowitz JA, Givertz MM, et al. Executive Summary: HFSA 2010 Comprehensive Heart Failure Practice Guideline. *J Card Fail* 2010;16:475-539.

HF-2: Evaluation of LVS Function

Numerator: Heart failure patients with documentation in the hospital record that LVS function was evaluated before arrival, during hospitalization, or is planned for after discharge.

Denominator: Heart failure patients.





Heart Failure (HF)-2: Evaluation of Left Ventricular Systolic Function

Numerator: Heart failure patients with documentation in the hospital record that Left Ventricular Systolic function was evaluated before arrival, during hospitalization, or is planned for after discharge.

Denominator: Heart failure patients.

1. Start processing. Run cases that are included in the Heart Failure Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Check Clinical Trial
 - a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
 - c. If Clinical Trial equals No, continue processing and proceed to Discharge Disposition.
3. Check Discharge Disposition
 - a. If Discharge Disposition is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Discharge Disposition equals 2, 3, 4, 6 or 7, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
 - c. If Discharge Disposition equals 1, 5 or 8, continue processing and proceed to Comfort Measures Only.
4. Check Comfort Measures Only
 - a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Comfort Measures Only equals 1, 2 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
 - c. If Comfort Measures Only equals 4, continue processing and proceed to Left Ventricular Function (LVF) Assessment.
5. Check LVF Assessment
 - a. If LVF Assessment is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.

- b. If LVF Assessment equals R, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
- c. If LVF Assessment equals No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
- d. If LVF Assessment equals Yes, the case will proceed to a Measure Category Assignment of E and will be in the Numerator Population. Stop processing.

NQF-ENDORSED VOLUNTARY CONSENSUS STANDARDS FOR HOSPITAL CARE

Measure Information Form

Measure Set: Heart Failure (HF)

Set Measure ID#: HF-3

Performance Measure Name: ACEI or ARB for LVSD

Description: Heart failure patients with left ventricular systolic dysfunction (LVSD) who are prescribed an ACEI or ARB at hospital discharge. For purposes of this measure, LVSD is defined as chart documentation of a left ventricular ejection fraction (LVEF) less than 40% or a narrative description of left ventricular systolic (LVS) function consistent with moderate or severe systolic dysfunction.

Rationale: ACE inhibitors reduce mortality and morbidity in patients with heart failure and left ventricular systolic dysfunction (The SOLVD Investigators, 1991 and CONSENSUS Trial Study Group, 1987) and are effective in a wide range of patients (Masoudi, 2004). Clinical trials have also established ARB therapy as an acceptable alternative to ACEI, especially in patients who are ACEI intolerant (Granger, 2003 and Pfeffer, 2003). National guidelines strongly recommend ACEIs for patients hospitalized with heart failure (Jessup, 2009 and HFSA, 2010). Guideline committees have also supported the inclusion of ARBs in performance measures for heart failure (Executive Council of the Heart Failure Society of America, 2004).

Type of Measure: Process

Improvement Noted As: An increase in the rate

Numerator Statement: Heart failure patients who are prescribed an ACEI or ARB at hospital discharge.

Included Populations: Not Applicable

Excluded Populations: None

Data Elements:

- *ACEI Prescribed at Discharge*
- *ARB Prescribed at Discharge*

Denominator Statement: Heart failure patients with LVSD.

Included Populations: Discharges with:

- An *ICD-9-CM Principal Diagnosis Code* for heart failure as defined in Appendix A, Table 2.1

AND

- Chart documentation of a LVEF less than 40% or a narrative description of LVS function consistent with moderate or severe systolic dysfunction

Excluded Populations:

- Patients who had a left ventricular assistive device (LVAD) or heart transplant procedure during hospital stay (ICD-9-CM procedure code for LVAD and heart transplant as defined in Appendix A, Table 2.2)
- Patients less than 18 years of age
- Patients who have a Length of Stay greater than 120 days
- Patients enrolled in clinical trials
- Patients discharged to another hospital
- Patients who left against medical advice
- Patients who expired
- Patients discharged to home for hospice care
- Patients discharged to a health care facility for hospice care
- Patients with *Comfort Measures Only* documented
- Patients with a documented *Reason for No ACEI and No ARB at Discharge*

Data Elements:

- *Admission Date*
- *Birthdate*
- *Clinical Trial*
- *Comfort Measures Only*
- *Discharge Date*
- *Discharge Disposition*
- *ICD-9-CM Other Procedure Codes*
- *ICD-9-CM Principal Diagnosis Code*
- *ICD-9-CM Principal Procedure Code*
- *LVSD*
- *Reason for No ACEI and No ARB at Discharge*

Risk Adjustment: No

Data Collection Approach: Retrospective data sources for required data elements include administrative data and medical records.

Data Accuracy: Variation may exist in the assignment of ICD-9-CM codes; therefore, coding practices may require evaluation to ensure consistency.

Measure Analysis Suggestions: None

Sampling: Yes, please refer to the measure set specific sampling requirements and for additional information see the Population and Sampling Specifications Section.

Data Reported As: Aggregate rate generated from count data reported as a proportion

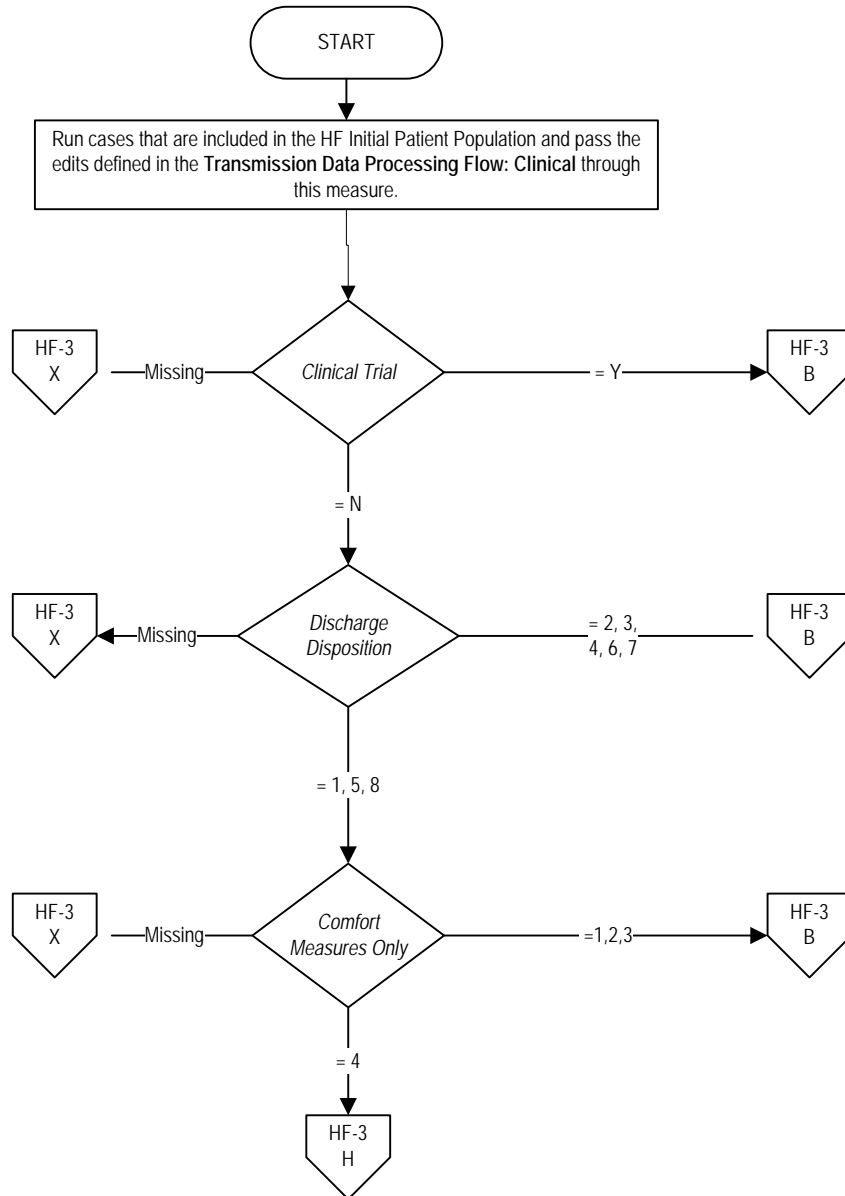
Selected References:

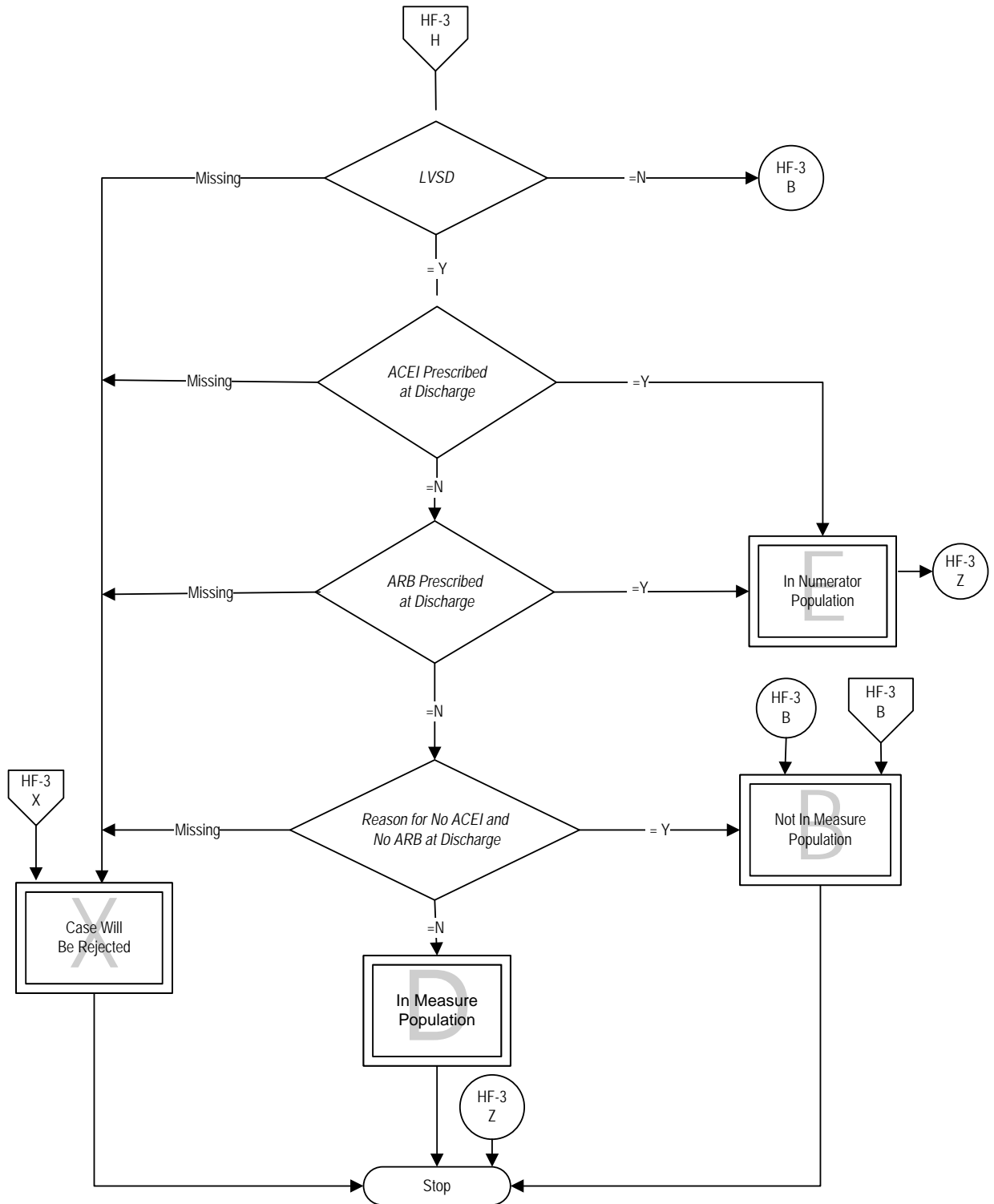
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HF-3: ACEI or ARB for LVSD

Numerator: Heart failure patients who are prescribed an ACEI or ARB at hospital discharge.

Denominator: Heart failure patients with LVSD.





Heart Failure (HF)-3: Angiotensin Converting Enzyme Inhibitor (ACEI) or Angiotensin Receptor Blocker (ARB) for Left Ventricular Systolic Dysfunction (LVSD)

Numerator: Heart failure patients who are prescribed an ACEI or ARB at hospital discharge.

Denominator: Heart failure patients with LVSD.

1. Start processing. Run cases that are included in the Heart Failure Initial Patient Population and pass the edits defined in the Transmission Data Processing Flow: Clinical through this measure.
2. Check Clinical Trial
 - a. If Clinical Trial is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Clinical Trial equals Yes, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
 - c. If Clinical Trial equals No, continue processing and proceed to Discharge Disposition.
3. Check Discharge Disposition
 - a. If Discharge Disposition is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Discharge Disposition equals 2, 3, 4, 6 or 7, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
 - c. If Discharge Disposition equals 1, 5 or 8, continue processing and proceed to Comfort Measures Only.
4. Check Comfort Measures Only
 - a. If Comfort Measures Only is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Comfort Measures Only equals 1, 2 or 3, the case will proceed to a Measure Category Assignment of B and will not be in the measure population. Stop processing.
 - c. If Comfort Measures Only equals 4, continue processing and proceed to LVSD.

5. Check LVSD
 - a. If LVSD is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If LVSD equals No, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.
 - c. If LVSD equals Yes, continue processing and proceed to ACEI Prescribed at Discharge.

6. Check ACEI Prescribed at Discharge
 - a. If ACEI Prescribed at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If ACEI Prescribed at Discharge is Yes, the case will proceed to a Measure Category Assignment of E and will be in the numerator population. Stop processing.
 - c. If ACEI Prescribed at Discharge is No, continue processing and proceed to ARB Prescribed at Discharge.

7. Check ARB Prescribed at Discharge
 - a. If ARB Prescribed at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If ARB Prescribed at Discharge is Yes, the case will proceed to a Measure Category Assignment of E and will be in the numerator population. Stop processing.
 - c. If ARB Prescribed at Discharge is No, continue processing and proceed to Reason for No ACEI or No ARB at Discharge.

8. Check Reason for No ACEI and No ARB at Discharge
 - a. If Reason for No ACEI and No ARB at Discharge is missing, the case will proceed to a Measure Category Assignment of X and will be rejected. Stop processing.
 - b. If Reason for No ACEI and No ARB at Discharge is No, the case will proceed to a Measure Category Assignment of D and will be in the Measure Population. Stop processing.
 - c. If Reason for No ACEI and No ARB at Discharge is Yes, the case will proceed to a Measure Category Assignment of B and will not be in the Measure Population. Stop processing.

Last Updated: Version 4.0a

HF 4 Adult Smoking Cessation Advice/Counseling was retired effective with January 01, 2012 discharges