THE COMMONWEALTH FUND

Flowers Hospital: Nearing Perfection on Core Measures

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Vital Signs

Location: Dothan, Ala., near Georgia and Florida borders

Type: Nonteaching, for-profit community hospital owned by Community Health Systems, Inc., of Franklin, Tenn.

Beds: 235

Distinction: Top 1 percent of hospitals in composite of 22 process-of-care quality measures among roughly 2,000 hospitals (about half of U.S. acute-care hospitals) eligible for this analysis; also scored in top 1 percent of hospitals for prevention of surgical infections. Timeframe: Second quarter of 2006 through first quarter of 2007. To be included, hospitals must have submitted data to the Centers for Medicare and Medicaid Services for all 22 measures, with a minimum of 30 cases for at least one measure in each of four clinical areas. See Appendix A for full methodology.

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SUMMARY

Under the leadership of a quality-focused CEO, Flowers Hospital in Dothan, Ala., climbed from average to exemplary in Centers for Medicare and Medicaid Services (CMS) process-of-care, or "core" measures, across four clinical areas (heart attack, heart failure, pneumonia, and surgical infection prevention) in just two years. Flowers' Quality Department identifies patients in these clinical areas early in their hospital stay and continuously monitors their progress to ensure they are getting the right care—a unique approach to achieving high performance. This approach has five critical elements:

- **Patient identification**. Patients who experience heart failure, heart attack, pneumonia, or have surgery are identified at the beginning of their hospitalization, so that appropriate care can be provided in a timely manner.

- **Concurrent review.** A concurrent nurse reviewer monitors each eligible patient to ensure his or her care meets the standards and intervenes as needed.

- **Tools for frontline staff.** Nurses receive a color-coded packet to help them follow the expected practices, including providing patient education and delivering the appropriate care for that condition. Disease-specific progress notes and order forms are also used.

- **Quality improvement teams.** Multidisciplinary teams review all failures of compliance and modify care processes if necessary to improve future adherence to guidelines.

- **Performance oversight and accountability.** Team leaders meet with the CEO to discuss "fall outs," establishing accountability for achieving goals among the staff at the highest levels.

In 2007, Flowers Hospital achieved 99.7 percent compliance with CMS core measures, the second-highest score in the country. Now staff members are testing whether the same strategy of making mid-stay corrections can help the hospital improve its patient satisfaction scores on the Hospital Consumer Assessment of Healthcare Providers and Systems (HCAHPS) survey.

ORGANIZATION

Flowers Hospital sits in a rural part of Alabama, close to the Georgia and Florida borders, and serves as a referral hospital for the region. It has 235 licensed beds but runs a census of about 160 patients a day. Its largest payer is Medicare, followed by Blue Cross, but the hospital gets its share of self-pay patients as well. A non-teaching, community hospital, Flowers was recently purchased by Community Health Systems of Franklin, Tenn.

STRATEGIES FOR SUCCESS

In 2005, Flowers' scores on the CMS core measures were in the 85 to 90 percent range—good, but leaving room for improvement. Like many hospitals, Flowers first used retrospective data to analyze why some patients were not getting care that met CMS standards. The data led them to test numerous system changes and reporting methods. "But the flaw to our old system of review," according to Chief Quality Officer Amy Butler, R.N., CCRN, "was by the time the data were reviewed and understood, the patient had been discharged and there was no chance to improve that patient's experience." To improve performance, Flowers created a system to allow much more timely review.

CEO Keith Granger envisioned Flowers as a top-performing hospital and helped to lead its transformation.

Patient Identification

The CMS core measures pertain to patients with heart failure, heart attack, pneumonia, or those at risk for surgical infection. In addition, Flowers has prioritized the care of pediatric asthma patients. Identifying these patients as target groups, or panels, is a critical component of the hospital's quality strategy.

Surgical patients are, of course, easy to identify because they are nearly always admitted to the hospital for surgery. For such patients, the responsibility for monitoring achievement of standards to prevent surgical infections is universal, and begins with the operating room staff. Heart attack patients are also easily identified.

Heart failure and pneumonia patients are harder to flag because their admitting diagnoses are often something other than these two conditions. At Flowers, new admissions are reviewed for likely cases of heart failure or pneumonia. In addition, a report from the Information Technology (IT) Department identifies newly admitted patients who have a prior admission of heart failure, and patients are asked about a history of heart failure during their intake interview.

Retrospective review showed that these screens helped, but the hospital was still missing about 30 to 50 new heart failure patients per month. A large percentage of those missed turned out to be renal patients. This realization led staff to screen all renal patients for

inclusion in the heart failure panel. A further identification strategy is an enzyme test to assess a patient's BNP level, the amount of B-type natriuretic peptide in the bloodstream. Patients whose BNP level exceeded 100 pg/mL are likely to be experiencing heart failure, so the lab system identifies all patients with a BNP level greater than 100.

> "The flaw to our old system of review was by the time the data were reviewed and understood, the patient had been discharged and there was no chance to improve that patient's experience."
>
> Amy Butler, R.N., CCRN, Chief Quality Officer

Concurrent Review

The job of the concurrent reviewer is to monitor care for all patients on the targeted panels. In reading patients' charts, the reviewer may find reasons why a patient is not a candidate for care as recommended by the core measures and exclude these patients from review. While making daily rounds on all remaining patients, the reviewer checks the chart against each care standard—a task facilitated by the checklist labels described below—and intervenes to keep their care on course. If, for example, a patient appears to be likely to miss a dose of antibiotic, the concurrent reviewer can prompt the nurse or doctor to give the drug or write the prescription needed to keep the patient up to date.

Flowers has one full-time concurrent reviewer and a small team of backup staff. One operating room staff member performs reviews on surgical cases.

Tools for Frontline Staff

Like many hospitals, Flowers found that frontline staff need more than just the guidance of a good protocol to keep a patient's care on course. Most staff know and follow care protocols. However, Butler says, she was "worried about the new nurse in the middle of the night who may be less familiar with the protocol and her role." Quality improvement teams developed packets (using different colors for each condition) describing the CMS standards. The packets contain patient education material, the care pathway, which delineates

steps nurses should take in applying the protocol, and additional tracking information. A brightly colored label placed on a chart identifies a patient's condition and indicates the schedule of care nurses must provide. The label itself becomes a checklist, so the floor nurse and the concurrent reviewer know at a glance if care is on course.

Another tool is a physician-designed progress note for heart attack and heart failure patients (Appendix B). This was developed in response to the realization that, in some cases, care protocols for these patients appeared to have been missed, when in fact certain patients should have been noted as being exempt from the care standard. Heart attack patients with an aspirin allergy, for example, appeared to be out of compliance with the recommendation to provide aspirin upon arrival, since doctors were not adequately documenting the exemption. The heart failure team created a progress note on which physicians check off relevant exclusions, and staff report that it has been easy to use and monitor.

Pre-printed orders are also in use at Flowers, helping to achieve greater uniformity in care processes. Patients admitted for surgery, for example, have standing orders to start and stop appropriate antibiotics. Physicians check off the right drugs and doses.

Quality Improvement Teams

Flowers has an interdisciplinary quality improvement team for each of the five targeted conditions. The teams are led by nurses and include other clinicians, such as pharmacists and anesthesiologists. At biweekly meetings, the teams review data on compliance with the CMS standards. Failures are discussed and root causes identified. When needed, the teams redesign care processes to ensure similar patients are not missed in the future, using a rapid-cycle improvement methodology that has proven successful.

An example of a recent improvement developed by the surgical infection prevention team is the addition of a note on the medication administration record. Data showed that some patients at risk of post-surgical infections did not have their antibiotics discontinued in

> ### Medication Reconciliation
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> Medication reconciliation is one of the hardest processes for a hospital to get right, but it is an important measure of patient safety. The Joint Commission added medication reconciliation to its accreditation review in 2007.
>
> Both heart attack and heart failure patients should be prescribed medication at discharge. Flowers Hospital found that, even when it achieved near-perfect compliance on other measures of care for these patients, documentation of the discharge medication was difficult to achieve because its medication reconciliation process was incomplete.
>
> The heart failure team came up with a potential solution. Upon admission, patients are asked to report all medications they are currently taking. The pharmacy department then enters these medications into a patient's profile and indicates whether they are to be continued or held. Throughout the hospital stay, additional prescriptions are added to the medication administration record. Each night, the pharmacy generates an electronic medication discharge form; physicians review the form and note which drugs to continue and which to stop at discharge. The form can also be used as a prescription for any new drugs that need to be purchased post-discharge. Flowers does not currently have the capacity to store the information for future admissions or outpatient visits. However, later this year, they plan to implement an electronic health record that will support ongoing medication reconciliation across visits and sites of care.

a timely manner after surgery. To ensure nurses stop the antibiotics at the right interval, the concurrent reviewer now puts a purple reminder note on the record; this change has led to a nearly perfect compliance rate.

Performance Oversight and Accountability

Quality team leaders report to Butler and Granger each month to review data as a group. "Fallouts," which are sometimes errors and other times omissions of documentation, are discussed. It is not the goal to make fallouts punitive. When they occur due to an error, the manager discusses the error with the staff member, and the staff member provides a written response about his or her role and potential solutions to the problem. Such interactions are not included in employees' personnel files.

RESULTS

The results of this quality improvement approach have been dramatic. As of the end of 2007, Flowers Hospital was achieving exemplary performance across all core measures and holding the gains (Table, page 6). The Figure on page 7 shows longitudinal data for one clinical area, heart attack care, over the time period of the quality improvement work.

Flowers Hospital has not found that financial rewards are a necessary part of their quality improvement strategy. Staff are committed to a culture of quality improvement without monetary incentives. Reinforcement is provided through personal, positive feedback and internal newsletters. Individual feedback to physicians on their performance on these five conditions has fallen by the wayside; the Quality Department used to post physician scores but, with everyone scoring so high, it decided there was no need to continue doing so.

FLOWERS HOSPITAL: NEARING PERFECTION ON CORE MEASURES

External recognition has come from the Alabama Hospital Association, the Alabama Quality Assurance Foundation (the Medicare Quality Improvement Organization), and the American Hospital Association. Granger chairs and Butler serves on a statewide taskforce on quality improvement to share Flowers' experiences with colleagues at other hospitals. Dozens of hospitals have toured Flowers to observe its successful work processes. CEO Keith Granger has been recognized by the American Hospital Association for his leadership on quality and safety through grassroots work with the Alabama Hospital Association. He also received the first Sherrill Quality Award from the Alabama Quality Assurance Foundation in 2007.

LESSONS LEARNED

Flowers Hospital leaders believe the strategies employed to improve performance on core measures can improve quality for many other conditions as well. In the last several months, Flowers has begun comparable efforts to prevent several hospital-acquired patient conditions, including pressure ulcers, catheter-associated urinary tract infections, falls, and central line bloodstream infections. The early evidence is that the techniques are transferable to these conditions as well.

Another example of spreading the strategy is the application to patient experience. Flowers, like many U.S. hospitals, has recently begun to use the HCAHPS survey to measures patients' perspectives of hospital care. But, unlike most hospitals, Flowers also assesses patients' responses and aims to address any deficiencies while they are still in the hospital, rather than waiting for HCAHPS results to come back weeks or even months later. The Patient Care Services Representative conducts daily surveys of a random sample of inpatients, a total of 100 to 150 surveys a month. The questions mirror those in the HCAHPS survey, covering the six domains of patient experience. If a problem is uncovered, the Patient Care Services Representative addresses it immediately with the charge nurse. The data are also compiled longitudinally and improvement efforts are developed to address the problem systemically. HCAHPS results provide the hospital with useful data for addressing system changes to benefit all patients.

For More Information

For further information, contact Amy Butler, chief quality officer, amy_butler@chs.net or (334) 794-5000.

Table. Flowers' Scores on 22 CMS Core Measures Compared with State and National Averages

Indicator	National Average	Alabama Average	Flowers Hospital
Heart Failure			
Percent of heart failure patients given discharge instructions	69%	69%	93% of 263 patients
Percent of heart failure patients given an evaluation of LVS function	87	85	100% of 305 patients
Percent of heart failure patients given ACE inhibitor or ARB for LVS dysfunction	87	87	100% of 117 patients
Percent of heart failure patients given smoking cessation advice/counseling	89	87	100% of 54 patients
Pneumonia			
Percent of pneumonia patients given oxygenation assessment	99	99	100% of 197 patients
Percent of pneumonia assessment patients assessed and given pneumococcal vaccination	78	75	98% of 152 patients
Percent of pneumonia patients whose initial emergency room blood culture was performed prior to the administration of the first hospital dose of antibiotics	90	90	99% of 152 patients
Percent of pneumonia patients given smoking cessation advice/ counseling	85	88	100% of 73 patients
Percent of pneumonia patients given initial antibiotics within six hours after arrival	93	92	100% of 91 patients
Percent of pneumonia patients given the most appropriate initial antibiotic(s)	87	84	99% of 109 patients
Percent of pneumonia patients assessed and given influenza vaccination	75	72	98% of 54 patients
Heart Attack			
Percent of heart attack patients given aspirin at arrival	94	87	100% of 143 patients
Percent of heart attack patients given aspirin at discharge	91	90	100% of 236
Percent of heart attack patients given ACE inhibitor or ARB for LVS dysfunction	88	82	100% of 49 patients
Percent of heart attack patients given smoking cessation advice/counseling	92	93	100% of 90 patients
Percent of heart attack patients given beta blocker at discharge	92	86	100% of 244 patients
Percent of heart attack patients given beta blocker at arrival	89	84	100% of 121 patients
Percent of heart attack patients given fibrinolytic medication within 30 minutes of arrival	40	40	no patients met inclusion criteria
Percent of heart attack patients given PCI within 90 minutes of arrival	67	69	94% of 33 patients
Surgical Care Improvement/Surgical Infection Prevention			
Percent of surgery patients who received preventive antibiotics one hour before incision	84	84	100% of 1127 patients
Percent of surgery patients who received the appropriate preventive antibiotics for their surgery	91	88	100% of 1132 patients
Percent of surgery patients whose preventive antibiotics are stopped within 24 hours after surgery	82	80	99% of 1073 patients
Percent of surgery patients whose doctors ordered treatments to prevent blood clots (venous thromboembolism) for certain types of surgeries	80	76	100% of 1264 patients
Percent of surgery patients who received treatment to prevent blood clots within 24 hours before or after selected surgeries	77	73	100% of 1264 patients

Note: ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blockers; LVS = left ventricular systolic; PCI = percutaneous coronary intervention.
Source: www.hospitalcompare.hhs.gov. Accessed on 10/24/08. Data are from CY2007.

Figure. Flowers Hospital Performance on Heart Attack Quality Measures, 2004–2007
Flowers Hospital Data: Acute Myocardial Infarction (AMI)

⟷ National Top 10%
⟷ National Average
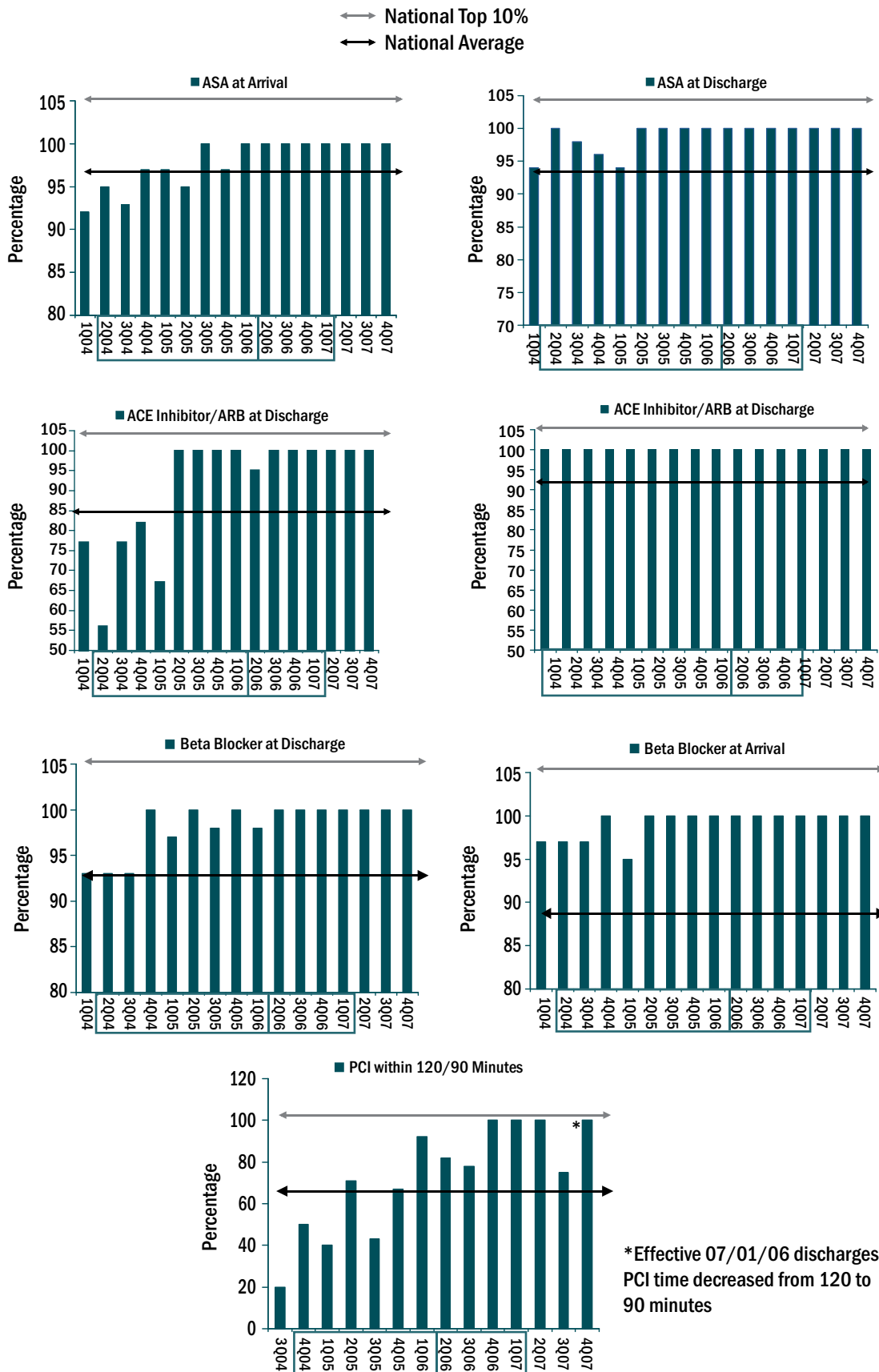
Note: ASA = acetylsalicylic acid; ACE = angiotensin-converting enzyme; ARB = angiotensin receptor blockers;
PCI = percutaneous coronary intervention.
Source: Flowers Hospital, 2008.

APPENDIX A. SELECTION METHODOLOGY

Selection of high-performing hospitals in process-of-care measures for this series of case studies is based on data submitted by hospitals to the Centers for Medicare and Medicaid Services. We use 22 measures that are publicly available on the U.S. Department of Health and Human Services' Hospital Compare Web site, Hospital Compare (www.hospitalcompare.hhs.gov). The 22 measures, developed by the Hospital Quality Alliance, relate to practices in four clinical areas: heart attack, heart failure, pneumonia, and surgical infections.

Heart Attack Process-of-Care Measures
Percent of Heart Attack Patients Given ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD)
Percent of Heart Attack Patients Given Aspirin at Arrival
Percent of Heart Attack Patients Given Aspirin at Discharge
Percent of Heart Attack Patients Given Beta Blocker at Arrival
Percent of Heart Attack Patients Given Beta Blocker at Discharge
Percent of Heart Attack Patients Given Fibrinolytic Medication Within 30 Minutes of Arrival
Percent of Heart Attack Patients Given PCI Within 90 Minutes of Arrival
Percent of Heart Attack Patients Given Smoking Cessation Advice/Counseling

Heart Failure Process-of-Care Measures
Percent of Heart Failure Patients Given ACE Inhibitor or ARB for Left Ventricular Systolic Dysfunction (LVSD)
Percent of Heart Failure Patients Given an Evaluation of Left Ventricular Systolic (LVS) Function
Percent of Heart Failure Patients Given Discharge Instructions
Percent of Heart Failure Patients Given Smoking Cessation Advice/Counseling

Pneumonia Process-of-Care Measures
Percent of Pneumonia Patients Assessed and Given Influenza Vaccination
Percent of Pneumonia Patients Assessed and Given Pneumococcal Vaccination
Percent of Pneumonia Patients Given Initial Antibiotic(s) Within 4 Hours After Arrival
Percent of Pneumonia Patients Given Oxygenation Assessment
Percent of Pneumonia Patients Given Smoking Cessation Advice/Counseling
Percent of Pneumonia Patients Given the Most Appropriate Initial Antibiotic(s)
Percent of Pneumonia Patients Whose Initial Emergency Room Blood Culture Was Performed Prior to the Administration of the First Hospital Dose of Antibiotics

Surgical Care Improvement/Surgical Infection Prevention Process-of-Care Measures
Percent of Surgery Patients Who Received Preventative Antibiotic(s) One Hour Before Incision
Percent of Surgery Patients Who Received the Appropriate Preventative Antibiotic(s) for Their Surgery
Percent of Surgery Patients Whose Preventative Antibiotic(s) Are Stopped Within 24 hours After Surgery

The analysis uses all-payer data from the second quarter of 2006 through the first quarter of 2007. To be included, a hospital must have submitted data for all 22 measures (even if data submitted were based on zero cases), with a minimum of 30 cases for at least one measure in each of the four clinical areas. Approximately 80 percent of U.S. acute care hospitals submitted data on the 22 measures. Approximately 2,000 facilities—about half of acute care hospitals—were eligible for the analysis.

No explicit weighting was incorporated, but higher-occurring cases give weight to that measure in the average. Since these are process measures (versus outcome measures), no risk adjustment was applied. Exclusion criteria and other specifications are available at http://www.qualitynet.org/dcs/ContentServer?cid=1141662756099&pagename= QnetPublic%2FPage%2FQnetTier2&c=Page).

APPENDIX B. PHYSICIAN-DESIGNED PROGRESS NOTE FOR AMI AND HEART FAILURE PATIENTS

Flowers Hospital

AMI / CHF Criteria
Physician Record
☐ **Not Applicable (No AMI or LVEF $\geq$ 40%)**

The first four indicators apply to AMI only:

☐ **ASA Ordered Within First 24 Hours**
    ☐ **EXCLUSIONS / CONTRAINDICATIONS:**
    ☐ ASA allergy/intolerance ☐ Active bleeding on arrival or within 24 hrs ☐ Coumadin as Pre-arrival medication
    ☐ Other reason as documented by physician:

_____

☐ *Beta Blocker ordered within first 24 hours*

    ☐ *EXCLUSIONS / CONTRAINDICATIONS:*

☐ Beta Blocker allergy or intolerance	☐ Heart rate less than 60 on arrival or within 24 hrs
☐ Heart failure on arrival or within 24 hrs	☐ 2nd or 3rd degree heart block on arrival or within 24 hrs and does not have a Pacemaker
☐ COPD, Asthma	
☐ Shock on arrival or within 24 hrs	☐ SBP < 90 mmHG on arrival or within 24 hrs

    ☐ Other reason documented by physician:

_____

☐ **ASA Ordered at Discharge**
    ☐ **EXCLUSIONS / CONTRAINDICATIONS:**
    ☐ ASA allergy/intolerance ☐ Active bleeding on arrival or within 24 hrs ☐ Coumadin as Pre-arrival medication
    ☐ Other reason as documented by physician:

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☐ *Beta Blocker ordered at discharge*

    ☐ *EXCLUSIONS / CONTRAINDICATIONS:*

☐ Beta Blocker allergy or intolerance	☐ Heart rate less than 60 on day of discharge or day prior to discharge while not on a Beta Blocker

    ☐ COPD, Asthma
    ☐ 2nd or 3rd degree heart block on arrival or during hospital stay and does not have a Pacemaker
    ☐ SBP < 90 mmHG on day of discharge or day prior to discharge while not on a Beta Blocker
    ☐ Other reason as documented by physician:

_____

The following two indicators apply to AMI & CHF:

☐ **LV Systolic function assessed / previously assessed / known to be:** ☐ Normal   ☐ Mildly Impaired (40% – 50%)

☐ Moderately Impaired (30% – 40%)   ☐ Severely Impaired (< 30%)

☐ *Ace Inhibitor / ARB ordered at discharge (Indicated for EF < 40%)*

☐ *EXCLUSIONS CONTRAINDICATIONS:*

☐ Allergy/Intolerance to ACEI & ARB   ☐ Aortic Stenosis – Moderate or Severe   ☐ SBP < than 100

☐ Other reason documented by physician:

_____

Additional Indicators:
☐ Smoking Cessation Counseling   ☐ CHF Written Discharge Instructions Ordered

CHF CLASSIFICATION
(Select ONE from EACH Column)

CHECK **ONE** OF THE FOLLOWING:	CHECK **ONE** OF THE FOLLOWING:
☐ **Acute Heart Failure**	☐ **Systolic Heart Failure**
☐ **Chronic Heart Failure**	☐ **Diastolic Heart Failure**
☐ **Acute on Chronic Heart Failure**	☐ **Systolic and Diastolic Heart Failure**

_____   _____

Physician Signature

_____

Date

ABOUT THE AUTHOR

Jennifer Edwards, Dr.P.H., M.H.S., is a principal with Health Management Associates' New York City office. Jennifer has worked for 20 years as a researcher and policy analyst at the state and national levels to design, evaluate, and improve health care coverage programs for vulnerable populations. She worked for four years as senior program officer at The Commonwealth Fund, directing the State Innovations program and the Health in New York City program. She has also worked in quality and patient safety at Memorial Sloan-Kettering Cancer Center, where she was instrumental in launching the hospital's Patient Safety program. Jennifer earned a Doctor of Public Health degree at the University of Michigan and a Master of Health Science degree at Johns Hopkins University.

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