Improving Care for Patients With Chronic Heart Failure in the Community*

The Importance of a Disease Management Program

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Study objective: Utilizing a comparison group of patients with congestive heart failure (CHF) discharged to their primary care physicians, we sought to determine if disease management in a short-term, aggressive-intervention heart failure clinic (HFC) following hospital discharge is associated with improved outcomes.

Design: Chart review.

Setting: An integrated health-care center serving a tristate area.

Patients: Inclusion criteria were discharge from the hospital with a primary diagnosis of CHF, outpatient follow-up within the hospital system, and the presence of left ventricular systolic dysfunction as the basis for CHF. Patients were categorized into group 1 if they were referred to the HFC after hospital discharge, and into group 2 if follow-up care was provided by their primary care physician.

Measurements and results: There were 38 patients in group 1 and 63 patients in group 2. There was a trend toward a shorter time to the first outpatient visit following discharge (11 days vs 15 days, p = 0.09), more outpatient visits within 90 days (10 visits vs 2 visits, p < 0.001), and more patient-initiated contacts (four contacts vs one contact, p = < 0.001) in group 1 compared to group 2, respectively. The combined hospital readmission and mortality rate at 90 days (10% vs 30%, p < 0.018) and 1 year (21% vs 43%, p < 0.02) was lower in group 1. There was a 77% relative risk reduction for 30-day hospital readmission in favor of group 1, and a statistically lower rate of readmissions at 90 days and 1 year. Utilization and maintenance of standardized CHF medications were significantly higher in patients who attended the HFC.

Conclusions: A comprehensive disease management program for patients discharged with a diagnosis of CHF resulted in fewer rehospitalizations and improved event-free survival compared to patients followed up by their primary care physicians. (CHEST 2002; 122:906–912)

Key words: congestive heart failure; disease management; outcomes

Abbreviations: ACEI = angiotensin-converting enzyme inhibitor; ARB = angiotensin receptor blocker; CHF = congestive heart failure; HFC = heart failure clinic; NS = not significant

Recent advances in cardiovascular medicine and the introduction of new therapeutic modalities have resulted in major declines in coronary heart disease mortality.1–3 However, there is little evidence for improvement in congestive heart failure (CHF) survival. Reports indicate that the mortality rate within 5 years of a CHF diagnosis is > 50%.4 Large clinical trials5–7 have yielded encouraging results demonstrating that medications such as angiotensin-converting enzyme inhibitor (ACEI), β-blockers, and spironolactone reduce morbidity and mortality.

Unfortunately, several challenges remain for management of CHF in the community. First, evidence suggests that it is very difficult for the average physician to keep abreast of the latest research findings. Familiarity with published guidelines remains less than ideal.8 Second, the medical management of CHF is complex. Many patients with CHF patients have multiple comorbidities and do not receive standardized CHF medications, or are not
prescribed doses shown to provide benefit in clinical
trials.9–11 Third, evidence suggests that many pa-
tients with CHF do not receive a diagnosis and
treatment until advanced disease occurs.12,13

As a result of these multiple limitations in man-
agement and deficiencies in the episodic manage-
ment model of care for CHF disease, heart failure
clinics (HFCs) have been established in several
institutions. These programs provide intensive out-
patient management to improve health status, pre-
vent clinical deterioration, and avert acute crisis.
Several of these programs assess their success based
on quantifying hospital readmission rates at some
time frame prior to and after patient enrollment in
an HFC. The advantage of this methodology is that
patients serve as their own controls. However, this
methodology may not be rigorous enough to exclude
confounding factors such as the advent of recom-
mendations derived from large clinical trials, includ-
ing the Metoprolol CR/XL Randomized Intervention
Trial,6 the Randomized Aldactone Evaluation
Study,7 and the Carvedilol Prospective Randomized
Cumulative Survival Study,8 as well as publication of
guidelines that may in themselves have resulted in
changes in practice patterns.

After reviewing the management of patients with
CHF patients in this institution, we established an
HFC in 1999. The purpose of the clinic was to
improve outcomes of patients with CHF. We under-
took this study in order to determine what difference
our clinic has made. During this study, we tried to
answer the following question: are there differences
in outcomes between patients referred to the HFC
after hospitalization compared to patients receiving
follow-up care by their primary care providers?

The purpose of this study was to determine if
patient participation in our short-term, intensive
HFC would result in improved hard end points
(morbidity and mortality) compared with patients
discharged to usual follow-up care by their primary
physicians. A second objective was to identify system
features associated with improved outcomes.

Materials and Methods

HFC Model

In April 1999, we initiated an HFC. This clinic was designed as
a multispecialty, short-term management program for patients
with heart failure. The core management team is composed of
three cardiologists with expertise in CHF, two nurse practitio-
ners, and a nurse educator. The team interacts closely with other
disciplines, including nephrology, pulmonology, and endocrinol-
ogy, to provide for easy access to reciprocal consultation services,
such as a nutritionist and exercise physiologist.

Criteria for enrollment in the HFC included New York Heart
Association class III or IV, multiple hospitalizations (two hospital
admissions in 2 months or three hospital admissions in 6 months),
or by referral by a primary care physicians. Mean time of
enrollment in the HFC is 3 months. At enrollment, a plan of care
is developed. During this time, the patient’s medications are
aggressively titrated, requiring frequent monitoring of laboratory
values and physical examination. With intensive education, pa-
tients are taught self-care skills in the management of their
disease. Timing of follow-up visits is flexible and individualized
for each patient based on their response to therapy.

Our goal is to have all patients receiving ACEI (20 mg of
lisinopril or equivalent) and up-titrates the ACEI to maximal
dose (40 mg of lisinopril or equivalent) unless contraindicated.
When an adequate dose of ACEI (20 mg of lisinopril or equivalent)
is achieved, β-blocker therapy is initiated and up-titrated. During
the period of up-titrations, we closely monitor diuretics, with a
goal of achieving a euvolemic state. Low-dose spironolactone is
considered for all patients with systolic dysfunction.

Particular attention is also placed on concurrent management
of comorbidities such as ischemia, atrial fibrillation, hyperten-
sion, ventricular tachycardia, peripheral vascular disease, diabe-
tes, and renal disease. Patients with significant ischemia and with
objective evidence of viable myocardium are referred for cardia-
surgery evaluation. Our HFC follows the Sixth Report of the
Joint National Committee on Prevention, Detection, Evaluation,
and Treatment of High Blood Pressure guidelines in aggressive
treatment of hypertension.15

In addition, patient education focuses on self-care manage-
ment, including diet, exercise, emotions, weight monitoring, and
recognition of exacerbation symptomatology. Patients are em-
powered to contact HFC staff for concerns related to their CHF
diagnoses and changes in their CHF standardized medications.
Once the patient is optimally managed, he or she is discharged
back to the referring physician with a long-term plan of care. A
follow-up visit is established for 6 months after HFC discharge
unless changes in the patient’s condition occur.

Patient Population

Between April 1, 1999, and March 30, 2000, there were a total
of 251 patients discharged alive with a primary diagnosis of CHF.
Patients were included in this study if they met one of the
following designated categories. Patients were classified as group
1 if they were referred directly to our HFC for management after
hospital discharge and had left ventricular systolic dysfunction
as a basis for their CHF. Patients were classified as group 2 if they
were not referred to the HFC, but did receive follow-up care
within our health-care system and had left ventricular systolic
dysfunction as a basis for their CHF.

A chart review was conducted on all patients meeting inclusion
criteria. Data were collected from electronic clinic records and
included basic demographics and clinical profile. In addition,
medication utilization was tracked. Outcome information includ-
ing hospital readmissions and mortality, as well as combined end
points of hospital readmission plus death, were determined at 30
days, 90 days, and again at 1 year. Hospital readmission was
defined as a CHF-related admission to the index hospital. The
index hospital is a major community referral center serving a
tristate area and a 100-mile radius. Mortality was determined
from the clinic record and death certificate listings. One-year
outcome data were available on all patients meeting inclusion
criteria.

Statistical Analysis

All continuous variables are expressed as means and SDs. Compara-
hions between groups were performed using the inde-

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dependent t test, the paired-sample t test, and a 2 × 2 factorial analysis for repeated measures. Categorical variables were analyzed with the χ² test, the Fisher exact test, and independent samples proportional analysis. Survival data were analyzed using a Kaplan-Meier curve yielding a Breslow statistic. A two-sided p value of 0.05 was considered significant.

Results

General

Between April 1, 1999, and March 30, 2000, there were a total of 251 patients discharged alive with a primary diagnosis of CHF. Among these, 101 patients had outpatient follow-up within the index hospital system, and 38 of these patients were referred on discharge to the HFC (group 1). The remaining 63 patients (group 2) were discharged for follow-up care to their primary care providers.

Patients referred to the HFC were predominantly male (71% vs 43%, respectively; p = 0.005), and relatively younger (68 ± 16 years vs 76 ± 11 years, respectively; p = < 0.002). However, group 1 patients had more severe left ventricular dysfunction with a left ventricular ejection fraction of 29% vs 39% for group 2 (p < 0.005; Table 1). Comorbidities were prevalent in both groups; however, patients in group 1 were more likely to have renal disease (p < 0.035), severe dysrhythmias (p < 0.039), an automatic implantable cardioverter defibrillator implant (p < 0.028), and hypotension (p < 0.002; Table 2).

The source of primary care for both groups of patients is shown in Table 3. Among group 2 patients, 52% were followed up by a general internal medicine or family practitioner. Other patients were followed up by physicians from subspecialties of internal medicine. Internal medicine or family practice physicians referred 66% of group 1 patients to the HFC. As stated previously, patients in group 1 were referred back to their primary care physicians after their CHF was stabilized. The typical patient required approximately 3 months of aggressive management to stabilize heart failure and optimize CHF medications.

System Features

The average length of hospital stay was not different between the groups (3.7 days vs 3.3 days in groups 1 and 2, respectively; p = not significant [NS]). There was a trend toward a shorter time period from discharge to the first outpatient visit for group 1 (11 days vs 15 days, respectively; p = 0.09). Over the course of 90 days, patients in group 1 had a mean of 10 follow-up visits, compared to 2 follow-up visits for patients in group 2 (p < 0.001); at 1 year, patients in group 1 had a mean of 11 follow-up visits vs 5 follow-up visits for patients in group 2 (p < 0.001). Similarly, the number of telephone contacts to health-care providers (initiated by patients related to CHF) in the first 30 days was significantly higher for patients enrolled in the HFC (four contacts vs one contact in groups 1 and 2, respectively; p < 0.001).

Medication Utilization

Discharge Medications: At the time of hospital discharge, prescription rates for ACEI (all doses) were 82% for group 1 and 65% for group 2. There were no significant differences in the proportion of patients placed on adequate doses of standardized medications between the two groups. We defined adequate or recommended ACEI dosage as lisinopril ≥ 20 mg or an equivalent brand of ACEI. The prescription rate for the recommended dose of ACEI was 29% in both groups, for angiotensin receptor blockers (ARBs) was 5% in group 1 and 6% in group 2.

Table 1—Demographic Data

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group 1 (n = 38)</th>
<th>Group 2 (n = 63)</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male gender, %</td>
<td>71</td>
<td>43</td>
<td>0.005</td>
</tr>
<tr>
<td>Age, yr (mean)</td>
<td>68</td>
<td>76</td>
<td>0.002</td>
</tr>
<tr>
<td>Ejection fraction, %</td>
<td>29</td>
<td>39</td>
<td>0.005</td>
</tr>
<tr>
<td>Ischemic heart disease, %</td>
<td>62</td>
<td>60</td>
<td>NS</td>
</tr>
<tr>
<td>Hypertension, %</td>
<td>53</td>
<td>56</td>
<td>NS</td>
</tr>
</tbody>
</table>

Table 2—Comorbidities*

<table>
<thead>
<tr>
<th>Comorbidities</th>
<th>Group 1</th>
<th>Group 2</th>
<th>p Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Diabetes mellitus</td>
<td>43</td>
<td>33</td>
<td>1.000</td>
</tr>
<tr>
<td>Renal failure</td>
<td>32</td>
<td>13</td>
<td>0.035</td>
</tr>
<tr>
<td>COPD</td>
<td>26</td>
<td>15</td>
<td>1.000</td>
</tr>
<tr>
<td>Hypertension</td>
<td>53</td>
<td>56</td>
<td>1.000</td>
</tr>
<tr>
<td>Hypotension (systolic BP ≤ 90 mm Hg)</td>
<td>16</td>
<td>0</td>
<td>0.002</td>
</tr>
<tr>
<td>Thyroid disease</td>
<td>17</td>
<td>15</td>
<td>1.000</td>
</tr>
<tr>
<td>Dysrhythmias</td>
<td>65</td>
<td>43</td>
<td>0.039</td>
</tr>
<tr>
<td>Automatic implantable cardioverter defibrillator</td>
<td>24</td>
<td>7</td>
<td>0.028</td>
</tr>
<tr>
<td>Pacemaker</td>
<td>16</td>
<td>10</td>
<td>1.000</td>
</tr>
</tbody>
</table>

*Data are presented as %.

Table 3—Sources of Primary Care Management*

<table>
<thead>
<tr>
<th>Variables</th>
<th>Group 1</th>
<th>Group 2</th>
</tr>
</thead>
<tbody>
<tr>
<td>Internal medicine/family practice</td>
<td>25 (66)</td>
<td>33 (52)</td>
</tr>
<tr>
<td>Cardiology</td>
<td>0</td>
<td>15 (24)</td>
</tr>
<tr>
<td>Pulmonary</td>
<td>3 (8)</td>
<td>5 (8)</td>
</tr>
<tr>
<td>Endocrinology</td>
<td>5 (13)</td>
<td>4 (6)</td>
</tr>
<tr>
<td>Nephrology</td>
<td>3 (8)</td>
<td>2 (3)</td>
</tr>
<tr>
<td>Oncology</td>
<td>0</td>
<td>2 (3)</td>
</tr>
<tr>
<td>Rheumatology</td>
<td>2 (5)</td>
<td>2 (3)</td>
</tr>
</tbody>
</table>

*Data are presented as No. (%).
in group 2, and for any dose of β-blocker was 71% in group 1 and 62% in group 2.

**Medications at Follow-up:** All group 1 patients, at the time of discharge from the HFC to follow-up care by their primary care providers, were either receiving a maximal ACEI dose (lisinopril ≥ 30 mg or equivalent) or an ARB. Mean time to discharge to primary care physician was 4 months. All patients were receiving β-blocker therapy. One year after hospital discharge, 16% of patients in group 1 had the doses of their standardized medications reduced by the primary care provider. However, maintenance on adequate doses of standardized medications at 1 year was significantly higher for group 1 (84%) compared with group 2 (38%; \( p < 0.001 \)) [Table 4]. Multivariate analysis revealed that there were also significant increases in the standardized dosage of ACEI from hospital to follow-up by group, with the CHF patients having significant up-titration, compared to the patients followed up by their primary care providers (\( F = 53.0, p < 0.001 \)). The mean ACEI dose was 36 mg of lisinopril or equivalent in group 1, compared to 20 mg in group 2. Specifically, 82% of patients in group 1 were maintained on a β-blocker and 65% tolerated moderate-to-high doses, defined as 100 to 200 mg of metoprolol succinate or an equivalent dose of another β-blocker. By contrast, only 56% of group 2 patients maintained β-blocker therapy at 1 year.

**Outcomes**

There was a trend toward lower hospital readmission rate at 30 days in group 1 (3% vs 13%, respectively; \( p = 0.08 \)), with a relative risk reduction of 77%. Both 90-day (5% vs 23%, respectively; \( p < 0.020 \)) and 1-year (16% vs 31%, respectively; \( p < 0.030 \)) hospital readmission rates were significantly lower for group 1. Time to hospital readmission also trended longer for group 1 (192 days) compared with group 2 (104 days; \( p = 0.08 \)). Among patients readmitted, only two patients in group 1 had two additional hospital admissions for CHF exacerbations. In contrast, there were four patients in group 2 with two additional hospital admissions and four patients with three additional hospital admissions. In other words, multiple readmission rates were also lower for group 1.

There were no differences in mortality alone at 90 days or 1 year, although mortality trended favorably for group 1. For instance, the mortality rate at 1 year was 11% for group 1, compared to 17% in group 2. However, there were significant differences in combined end points of rehospitalization and mortality at 90 days and 1 year. Rates for mortality and readmission were 30% for group 2 at 90 days, compared to 10% in group 1 (\( p < 0.018 \)). The combined end point of 1-year mortality and hospital readmission rates for group 2 was 43%, compared to 21% for group 1 (\( p < 0.021 \)). Event-free survival (survival without hospital readmission) was significantly higher in group 1 at 90 days (90% vs 70%, respectively; \( p < 0.018 \)) and at 1 year (79% vs 59%, respectively; \( p < 0.02 \)) [Fig 1, Kaplan-Meier curve].

**DISCUSSION**

CHF remains a major public health challenge. In spite of recent interest in the disease management of CHF, generated through reports from the large clinical trials and national guidelines, several deficiencies remain. Unresolved important limitations include underdiagnosis or missed diagnosis,\(^{12,13}\) underutilization of standardized heart failure medications,\(^{9–11}\) and difficulty for many physicians to keep abreast of the rapidly changing information.\(^{8}\)

Currently, the focus of CHF management is on episodic treatment and crisis intervention, strategies that are costly and suboptimal. CHF is a progressive disease that spans a spectrum from asymptomatic left ventricular dysfunction to end-stage disease. To address some of these limitations and adequately contend with the complexity of treatment for advanced heart failure, many disease management strategies have been developed.

Disease management systems operate on the supposition that heart failure is an active disease state regardless of whether or not an individual is symptomatic. In other words, instead of treating patients on a crisis basis, management is focused on treating the underlying disease process. Some of these models are designed to provide ready access to a healthcare professional, whereby early signs of exacerbations are noted and prompt intervention is provided.

<table>
<thead>
<tr>
<th>Table 4—Changes in Medication Management*</th>
</tr>
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<tbody>
<tr>
<td>Variables</td>
</tr>
<tr>
<td>-----------</td>
</tr>
<tr>
<td><strong>Group 1</strong></td>
</tr>
<tr>
<td>Optimized ACEI</td>
</tr>
<tr>
<td>Maximized ACEI</td>
</tr>
<tr>
<td>ARB</td>
</tr>
<tr>
<td>Not receiving adequate ACEI or ARB</td>
</tr>
<tr>
<td><strong>Group 2</strong></td>
</tr>
<tr>
<td>Optimized ACEI</td>
</tr>
<tr>
<td>Maximized ACEI</td>
</tr>
<tr>
<td>ARB</td>
</tr>
<tr>
<td>Not receiving adequate ACEI or ARB</td>
</tr>
</tbody>
</table>

*Data are presented as %.
tion can be promptly treated to avert crisis. Regardless of the model used, CHF disease management programs have consistently reported reductions in hospitalizations, emergency department visits, and probably costs.16–19

In our HFC, optimal management is viewed as a continual process of treating a progressive disease that is always active. By aggressively managing the disease and maximizing standardized medications, even when patients are in clinically stable condition, our goal is to prophylactically prevent exacerbations. Moreover, prompt attention to early signs and symptoms of decompensation, identified by the patients themselves, can lead to improved outcomes.

Current literature suggests that different models of CHF management programs have resulted in reductions in both hospitalization and emergency department visits. However, outcome variables have typically been measured before and after patient enrollment in the program. Using this methodology, the evidence supporting improved outcomes can be misleading. First, it does not tell whether or not the performance of the program is above or below national standards, because baseline data may vary in different programs. For instance, if the baseline readmission rate for an institution is 60% and is reduced by the CHF program to 30%, this reflects a 50% risk reduction for readmission. In contrast, a second program that reduced their readmission rate from 30 to 20% has a relative risk reduction for hospitalization of only 30%. Program 2 has a better performance, although it achieved a lower relative risk reduction. Analyzing program performance by this method can be misleading. Second, analysis using a before and after enrollment in a program design does not account for different confounding factors, such as improvements in general care based on the results of clinical trials, such as acceptance of use of ACEI and spironolactone, which are available to all care providers.

We wanted to determine if our comprehensive model of CHF program in the community leads to long-term improved outcomes. The results of this study show that the answer is affirmative. Compared to a group of patients discharged from the hospital in the same time frame and followed up by their primary care providers, the population of patients enrolled in the HFC had a trend toward fewer repeat hospital admissions at 30 days, and significant reductions at 90 days and at 1 year. Even though patients return to their primary care physicians after aggres-

Figure 1. Kaplan-Meier plot illustrating freedom from hospitalization and death. The upper curve represents patients referred to the HFC following hospitalization (group 1). The lower curve is the survival distribution for group 2 followed up by their primary care providers.
sive short-term management in our HFC, the improved outcome in terms of rehospitalization was retained at 1 year.

Although we did not specifically study costs, our results are consistent with other investigators\(^ {16,17,19}\) who have demonstrated that the benefit of reduced hospitalization is associated with significant cost savings per patient per year. In our study, not only did fewer patients require hospital readmissions in group 1, but only two patients required readmissions. In contrast, four patients in group 2 required two additional hospital admissions, and four patients required three additional hospital admissions. Inpatient hospital management is expensive, and any strategy that reduces hospitalization is likely to be associated with cost savings.

Although there were no significant differences in mortality at 30 days, 90 days, or 1 year, the results at each time interval showed a trend, favoring patients managed in the HFC. For instance, mortality rates at 1 year were 11% and 17% in groups 1 and 2, respectively. Difference in mortality within such a short term of follow-up would not be expected in a one-center study. Furthermore, when analyzed as a combined end point of mortality and hospital readmission, there was a statistically significant difference between groups in favor of patients seen in the HFC at 90 days and at 1 year.

What may explain these differences in outcomes? One possible explanation may be drug utilization. At the time of hospital discharge, similar proportions of patients in each group were treated with adequate ACEI and a β-blocker. However, at 90 days, all patients in group 1 were tolerating either high-dose ACEI or an ARB. In contrast, the proportion of patients in group 2 receiving adequate ACEI or ARB and a β-blocker did not change. At 1 year, while group 1 patients were being followed up by their primary care providers, a few patients had medications withdrawn or doses reduced. However, the maintenance rate of ACEI or ARB was still high (84%), whereas the maintenance rate remained low and unchanged in group 2 (38%).

This suggests the importance of not only starting patients on standardized medications, but also up-titrating these medications prior to discharging the patient back to the referring physician, because the likelihood of the medications being maintained is high. In contrast, when patients are not placed on adequate doses of standardized medications, they are likely to remain on suboptimal doses at 1 year. At 1 year, the mean dose of ACEI was 36 mg in group 1, compared to 20 mg in group 2.

It is possible that differences in outcomes may be explained in part by other technical or system differences. We found that there was a trend toward a shorter time period from discharge to the first outpatient visit for group 1, and significantly more outpatient visits and telephone contacts initiated by patients. We interpret this to mean, regardless of the model of care, that minor changes in the system can derive significant improvements in outcomes. These system changes include a prompt outpatient visit following hospital discharge, more frequent outpatient evaluations with up-titration of medications, and having a mechanism in place for ready access to a health-care provider. Patient education goals included recognizing early signs of decompensation, and empowerment to call their health-care providers when these signs and symptoms develop. Each of these goals is a critical component in managing a complex disease entity such as CHF.

**Limitations**

Our study has limitations that must be taken into account. First, this is not a randomized study. Referral to our clinic was at the discretion of the patients’ primary physicians. However, this reflects the reality of clinical care. An alternative design is a matched-case control study, but this could not be done for practical reasons. Second, the sample size is relatively small. In 1 calendar year, there were 251 patients discharged from the index hospital with a primary diagnosis of CHF. Among these, 101 patients had follow-up care at the index institution or one of its affiliate clinics. Outcome data were available on all of the 101 patients. It is unfortunate that we did not have access to data regarding all patients. Third, although all patients were discharged from the index institution, the source of in-hospital care was not uniform. This is typical and not unexpected in a multispecialty care hospital. The extent to which differences in physician care during hospitalization may have influenced outcome is not known.

**Conclusion**

Several studies have documented deficiencies in the management of CHF patients. These limitations may be even more important at the community level, since relatively few studies have been conducted assessing evidence-based practice at this level. Our study shows that a comprehensive disease management program for CHF is associated with improved outcomes in terms of reduced rehospitalizations and improved event-free survival. Furthermore, the results show that improved outcomes are achieved with subscription to evidence-based practice within an aggressive short-term CHF program. Moreover, the maintenance on standardized medications remained high at 1 year when patients were followed up by...
their primary care providers after discharge from the clinic. More importantly, improvements in early outcomes are sustained at 1 year. Early improvements in outcomes may be associated with system changes, such as early outpatient visits following discharge, frequent evaluations, and patient education focusing on self-care.

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