Congestive Heart Failure and Comprehensive Patient Education:

The Impact on Patient Outcomes

By

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Introduction

Congestive heart failure (CHF) is a common clinical syndrome with an enormous impact on the prognosis and lifestyle of patients (Green, Porter, Bresnahan &, Spertus, 2000). CHF remains the most common reason for hospitalization of the Medicare population in the United States and affects approximately five million Americans. The prevalence and incidence of CHF increase with age, from approximately 1% in people in their fifties to more than 10% in people older than eighty years. The number of patients with CHF is expected to grow as the proportion of elderly in the population increases, as the prognosis of patients with CHF improves by surgical and medical interventions, and as survival from myocardial infarctions increases (Jaarsma et al., 2000).

Chronic CHF develops gradually and is generally associated with high incidences of morbidity, mortality and repeated hospital admissions. CHF is a serious and lethal cardiac disease and the clinical syndrome often leads to a progressive increase in severity of symptoms, reduced quality of life and forced dependency (Frattini, Lindsay, Kerr &, Park, 1998). CHF has been shown to be the only cardiac disease process that is increasing in incidence and severity. The diagnosis of CHF has been associated with impaired functional status, diminished quality of life, and mortality rates as high as 50% within five years of diagnosis (Artinian, Magnan, Sloan & Lange, 2002).

CHF has a major impact on the lives of patients and their families. Severe symptoms, such as dyspnea, peripheral edema and exercise intolerance affect important aspects of a person's life. Patients often have to adjust their lifestyle by adhering to a complex medication regimen, restricting their diet and fluid intake, adapting their activities, and self-monitoring for symptoms
of worsening CHF. To make these adjustments and to care for themselves effectively, patients need specific knowledge and skills (Jaarsma et al., 1999). Teaching patients to enhance their self-care behavior through education and support can have a positive effect on lifestyle modification, (such as diet and exercise), on response to worsening symptoms and on ability to cope with a chronic illness. Patient education is a vital component of care for this population, with the goals of improving quality of life, minimizing symptoms and reducing hospital admissions.

**Statement of Purpose**

Therefore, the purpose of this paper is to illustrate the impact of comprehensive patient education on improving CHF symptom management, on decreasing the frequency and occurrence of hospitalizations and thus improving outcomes for patients with congestive heart failure.

**Framework and Theory**

Orem's Self-Care Model was utilized to guide this research paper. Orem considers self-care to be the phenomenon central to nursing. The model focuses on each individual's ability to perform self-care and explains how nursing professionals facilitate the self-care of clients (Burns & Grove, 2001, chap. 7). Before individuals with CHF can determine the appropriate thing to do, they must gain knowledge of elements specific to their situation, reflect on their meaning for healthy functioning and development, identify the course of action open to them, and determine the effectiveness and desirability of these courses of actions (Artinian et al., 2002).
According to Orem's model, the goal of nursing is to help people meet their own therapeutic self-care demands. Three types of nursing systems are identified: (1) wholly compensatory – wherein the nurse compensates for the patient's total inability to perform self-care activities; (2) partially compensatory – wherein the nurse compensates for the patient's partial inability to perform self-care activities; and (3) supportive, educative – wherein the nurse assists the patient in making decisions and acquiring skills and knowledge. This research paper will focus primarily on the third type of nursing system by illustrating the importance of providing support and patient education in a primary care setting.

**Review of Selected Research Literature**

Patient education has been shown to be a key component in comprehensive heart failure management. There is abundant medical and nursing literature that describes the benefits of nursing interventions in the management of CHF, including beneficial clinical and financial outcomes. Few studies however, are available that indicate the number of patients that have received comprehensive CHF education, how effective the education was, and the impact on decreasing symptoms, and the frequency and incidence of hospitalizations, therefore improving quality of life. Sparse research on these subjects could be found (Frattini et al., 1998; Ni et al., 1999).

Frattini, Lindsay, Kerr and Park (1998) performed a partial replication research study using a survey design to compare nurses and patients perceptions of the learning needs of CHF patients, and to identify existing gaps between these perceptions. CHF patients and cardiac nurses were surveyed using a modified version of the CHF Patient Learning Needs Inventory (CHFPLNI). The CHFPLNI was originally adapted from the Cardiac Patient Learning Needs
Congestive Heart Failure

Inventory (CPLNI) developed by Hagenhoff et al in 1994. This instrument consisted of 44 items and measured the importance of specific learning topics within the categories of anatomy and physiology, medications, diet, risk factors, activity, psychological factors, and other pertinent information. While there was no previous literature to date on the reliability of the CHFPLNI, the CPLNI had established validity, test-retest reliability and internal consistency with coefficient alpha scores of 0.91 for the whole test and individual categories ranging from 0.68 to 0.94 (Frattini et al., 1998).

All patients admitted to an eastern Canadian hospital with a primary diagnosis of CHF, and who could read and understand English were asked to participate in this learning needs inventory. All full-time and part-time clinical staff nurses who had practiced for more than six months in the hospital’s medical units were also asked to participate in this study.

Fifty patients completed the CHFPLNI, which represents a 90% survey return rate. They were predominately male (70%) between the ages of 56 and 75 years. Seventy-five percent of the subjects were retired, and 76% lived with a spouse. Sixty-four percent of the patient participants had more than one admission for the primary diagnosis of CHF prior to this admission. The return rate for the nurses was 74.6% (n=47). The majority of those who completed the CHFPLNI worked full-time, and averaged 9.2 years’ experience in caring for CHF patients.

The mean scores for each item and category for both groups were calculated. Comparisons between groups were analyzed using Student’s t-tests, with Tukey’s post hoc testing for multiple comparisons. A p-value <0.05 was considered statistically significant.

Mean scores for each category of information were calculated for both patient and nurse samples, and comparisons between groups were analyzed. With the exception of diet, patients
mean scores for all categories were higher than those of the nurses. The four top categories of needs as ranked by patients were medication, risk factors, anatomy and physiology, and psychological issues with mean scores ranging 4.48 to 4.14. The nurses rated medication, diet, risk factors and activity as the most important information for patients to know, with mean scores ranging from 4.39 to 3.86 respectively. Statistically significant differences between patients and nurses were found only for the anatomy and physiology category ($p<0.007$), and the psychological factors category ($p<0.01$). Both groups agreed that medication information was most important to know, but there were several differences in the ordering of the remaining categories.

Reliability analysis was calculated for the CHFPLNI using the results obtained from this study. The Cronbach’s alpha value was quite high at 0.94, indicating this instrument has demonstrated good internal consistency. The individual coefficient alpha scores for each of the seven categories ranged from 0.81 to 0.95.

The sample size and setting could be considered limitations. It was conducted at a tertiary care center that specializes exclusively in cardiac care which might have affected the results. Convenience sampling was used which may limit generalizability.

The predominant finding was that both patients and nurses believed all content was “moderately” to “very important” to learn. The patients generally rated all education information slightly higher than the nurses did. These findings may indicate that when patients are presented with information that may help them improve how they feel, or decrease their symptoms, they might be motivated to learn. Also, patients generally value information they receive from health care providers.
This study provides empirical data about CHF patients’ and nurses’ perceptions of patient learning needs. There clearly are differences in the subject areas patients and nurses perceive as important. From the patient’s perspective, these differences should not be disregarded; rather they should serve as the launching point to create educational programs that will specifically recognize individual patient concerns (Frattini et al., 1998).

A descriptive correlational study, guided by Orem’s theory of self-care (Artinian et al., 2002) was conducted to (a) examine the frequency of performance of self-care behaviors, (b) describe personal and environmental factors (basic conditioning factors [BCFs] ) that affect self-care behaviors, and (c) describe the relationship between the level of knowledge patients have to empower their performance of self-care and the actual performance of self-care behaviors.

One hundred and ten participants, predominantly African Americans (n=69, 63%), and Caucasians (n=37, 34%), who were outpatients or inpatients ready for hospital discharge, 18 years or older, and diagnosed with CHF that was confirmed by an ejection fraction of 40% or less, were conveniently selected from one of two sites. Eighty-six (78%) were men and twenty-four (22%) were women, ranging in age from 36 to 84 years (mean=64, SD=12 years). Data were collected with two investigator-developed instruments: the Revised Heart Failure Self-Care Behavior Scale and the Heart Failure Knowledge Test. Descriptive statistics, correlational analyses, and t-tests for independent samples were used to analyze the data.

The revised Heart Failure Self-Care Behavior Scale describes 29 behaviors that patients with CHF must perform to some degree to regulate (maintain or change) their own functioning. Respondents were asked to indicate how often each behavior is used on a scale ranging from “none of the time” (zero) to “all of the time” (5). Content validity of the scale was demonstrated
through evaluations made by a panel of experts, including two nurse practitioners and two self-care experts. Cronbach’s alpha reliability was 0.84.

The Heart Failure Knowledge Test (HFKT) was used to measure knowledge and to assess patient understanding of the following: CHF and the reason for symptoms; symptoms of worsening CHF; low-sodium food selection; medications and actions to take if there are side effects; and self-management relative to weight monitoring, physical activity, and worsening symptoms. One nurse practitioner that regularly manages patients with heart failure and two patient education experts evaluated the instrument for content validity. Cronbach’s alpha reliability was 0.62. All analyses were conducted with SPSS version 9.

Three of the top five most frequently performed self-care behaviors were related to taking prescribed medications. The other frequently performed self-care behaviors were keeping medical appointments and believing that a person can live a happy and good life, even after having been diagnosed with CHF. The five least frequently performed self-care behaviors concerned symptom monitoring or symptom management. These infrequently performed behaviors related to making a provider contact when experiencing the following CHF symptoms: more tiredness, nausea, and weight gain. The other behaviors infrequently performed included monitoring fluid intake and daily weight.

There were no significant relationships between the total self-care behavior score and any of the BCFs (ie. age, sex, race, marital status, health state, income, education, or living alone vs, living with someone). However, when the BCFs were examined in relation to specific self-care behaviors, several significant relationships emerged.

It was surprising to note that self-care behaviors related to taking medications were among those reported as performed “most of the time.” This finding seems contrary to the
literature, which reports high rates of medication noncompliance (Artinian et al., 2002). It is important to note that this study measured medication compliance through subjective rather than objective means. In addition, these findings may be partially explained by the fact that 55% of the sample came from a Veterans Affairs medical center, which automatically fills and refills prescriptions and mails to patients’ homes.

A disturbing finding of this study was that symptom monitoring, especially weight monitoring, was infrequently performed, but this is congruent with the findings of other investigators (Ni et al., 1999, Jaarsma et al., 2000).

Self-care knowledge scores were low in this sample. The mean total knowledge score was 5.31 with a range of zero to eleven, out of a possible maximum score of fifteen. There was a significant relationship between the mean total knowledge score and the mean total self-care behavior score ($r=0.21$, $p=0.026$).

Patients in this sample had low levels of knowledge about the specifics of CHF self-care, which suggested the need for creative approaches to providing information to patients with CHF. It was discovered that the degree of knowledge correlated to the ability of one to perform self-care, highlighting the importance of any level of heart failure specific knowledge. These findings were in keeping with Orem’s theory that proposes knowledge as a power that enables self-care; it must be specific and organized to meet known self-care requisites.

The findings highlighted the relationship between knowledge and self-care, and magnified the importance of understanding the influential effects of BCFs on the performance of specific behaviors. This in turn can assist health providers to tailor educational interventions to the patient’s specific situation.
A qualitative analysis study was designed and conducted by Rogers, Addington-Hall, Aubery and McCoy (2000) to explore patients' understanding of chronic heart failure and investigate their need for information and issues concerning communication. The focus was particularly on their experience of communicating with health care professionals.

In-depth interviews were conducted with twenty-seven patients with symptomatic heart failure, New York Heart Association (NYHA) class II, III, or IV, and who had been admitted to the hospital in the last twenty-four months. Patients interviewed were aged 38-94 (mean 69) years; 20 were men and 21 classified themselves as white. The mean left ventricular ejection fraction was 33.1% and the mean number of hospital admissions for CHF in the past 24 months was 1.7. Seven were in NYHA functional class II, 12 in class III, and eight in class IV. Participants were involved in an open-ended interview to discuss the effect of CHF on their everyday lives.

Two key areas emerged from the data collected. First was the patients’ knowledge and understanding of heart failure in general, including their likely prognosis. The second area focused on barriers to effective communication.

Patients generally gave accurate descriptions of the mechanisms associated with acute episodes of CHF. However, most lacked a clear understanding of why they had developed CHF, what it was, and what this implied for them.

Patients' narratives illustrated barriers to communication with physicians. They gave various reasons why they believed their physicians did not tell them as much about their condition as they would have liked. Some felt physicians generally did not want to give patients too much information about their illness or its treatment. This may have reinforced a belief that nothing could be done about their symptoms.
This lack of knowledge of CHF serves to highlight the importance of patient education and information. Patients in this study seemed to have been given little information about their likely prognosis or treatment. Many of these patients would have liked more information and the absence of sufficient knowledge about CHF is quite evident in this study.

Unlike quantitative research, qualitative studies do not aim to produce findings that are necessarily representative of a large population, but Jaarsma, Halfens, Abu-Saad & Dracup (1999) conducted a randomized, prospective study to describe the effect of education and support by a nurse on self-care and resource utilization. They felt that patient education and support were essential for enhancing self-care abilities, improving outcomes, and decreasing unnecessary hospitalizations (Jaarsma et al., 1999).

A total of 179 patients (mean age 73, 58% male, NYHA class III-IV) hospitalized with CHF were evaluated prospectively over a three-year period of time. Patients were randomized to the study intervention or to “care as usual”. The supportive educative intervention consisted of intensive, systematic and planned education by a study nurse about the consequences of heart failure in daily life, using a standard nursing care plan developed by the researchers. Education and support took place during the hospitalization and within a week of discharge. Patients assigned to the care as usual (control group) received basic education and all standard care, but were not provided with structured patient education or a home follow-up visit by a nurse.

End-points of the study were self-care ability, self-care behavior and resource utilization. Clinical and demographic data were collected. The Self-Care Agency Scale, a 24-item self-appraisal instrument, was used to assess the patient’s ability to care for him/herself. The scale was administered at the time of enrollment, and at 3 and 9 months after discharge. Cronbach’s alpha ranged from 0.80 to 0.87 and was evident of good instrument reliability.
Specific CHF related behavior was assessed using the Heart Failure Self-Care Behavior Scale. This is a 19-item questionnaire, with each item listing a specific activity related to heart failure. For each question the patient is asked to respond with a yes or no. Data were also collected at the time of enrollment, and at 3 and 9 months after discharge. Cronbach’s alpha reliability for this scale was a bit low ranging from 0.62 to 0.68.

During the follow-up interviews (1, 3 and 9 months after discharge) patients reported on the number, and reason for, contacts with their general practitioner, cardiologist, medical specialist or other health care provider. Reasons for readmission were collected from the patient’s medical chart.

There were no statistically significant differences in demographic and clinical variables between the control group and study group, although there was a trend towards increased severity of symptoms (NYHA IV) in the intervention group (70% vs. 54%, chi-square=4.9, p=0.087). Data analysis showed the ability of patients to care for themselves in general was not significantly different between the two groups at any time. Data on the Heart Failure Self-Care Behavior Scale showed the patients in both groups reported significantly higher self-care behaviors as compared with their baseline scores and both groups decreased their self-care behaviors over time. The increase in self-care behavior between baseline and at nine months post-discharge was statistically significant in the intervention group (t=4.9, p<0.001), but not in the control group (t=1.9, p= 0.058). No statistically significant differences were found in mean readmission days or number of readmissions between the two groups at the end of the nine-month study period. No significant differences were found in the resource utilization between the control and intervention patients.
This study demonstrated that education and support by a nursing professional in a hospital setting and at home significantly increases self-care behavior in patients with CHF. The intervention did not have a significant effect on readmission rates in this study but in other studies large reductions in readmission rates were found, as a result of various intensive interventions (Jaarsma et al., 1999). Possible explanations for not finding a significant difference in readmission rates might be the fact that only one follow-up visit occurred post hospitalization and the duration of the follow-up period was a short nine months. The interventions might have been more effective if they had been applied more frequently in the home situation, and thus more tailored to the needs of the patient. Additionally, it was noted that all the study participants were either NYHA class III or IV and this may have represented a sample that was more ill than participants in other studies.

Krumholz, Amatruda, Smith et al. (2002) conducted a prospective, randomized trial of formal education and support intervention on one-year readmission and costs of care for patients hospitalized with CHF. Their objective was to determine the effect of a targeted education and support intervention on the rate of readmission or death and hospital costs in patients with CHF (Krumholz et al., 2002).

This study involved patients aged >50 years old who met clinical criteria for presence of CHF upon admission to Yale-New Haven Hospital between October 1997 and September 1998. The median age of the patients was 74 years, 57% were men and 74% were Caucasian. The two groups were well balanced with respect to most characteristics, although the intervention group was slightly older and had a lower rate of previous coronary artery disease and surgical interventions. A total of 88 patients were studied, 44 in the intervention group and 44 in the control group.
The study intervention was based on five care domains for chronic illness, including patient knowledge of the illness, the relation between medications and illness, the relation between health behaviors and illness, knowledge of early signs and symptoms of decompensation and where and when to obtain assistance. The intervention occurred in two phases. Initially, the patients' understanding of the domains was assessed and reviewed in order to provide education targeting gaps in knowledge. Follow-up sessions then reviewed knowledge of care domains and provided support for patients to apply their knowledge, participate in managing these domains and effectively seek and access care. The support intervention was designed to reinforce the initial educational foundation theoretically by empowering patients and offering strategies to improve compliance. Neither clinical assessment of CHF nor modification of current medical regimen was a component of the meetings. However, the nurse could recommend that the patient consult his or her physician when the patient's status deteriorated or the patient experienced a significant problem requiring prompt attention, and, in doing so, the nurse helped the patients understand when and how to seek medical care.

Among the 88 subjects (44 intervention and 44 control), 25 (56.8%) in the intervention group and 36 (81.8%) in the control group had at least one readmission or died during the one-year follow-up (relative risk, 0.69; 95% confidence interval; p=0.01). The intervention was associated with a 39% decrease in the total number of readmissions (intervention group, 49 readmissions; control group, 80 readmissions; p=0.06). The intervention group had a significantly lower risk of readmission compared with the control group (hazard ratio, 0.56; 95% confidence interval, 0.32, 0.96; p=0.03) and hospital readmission costs were $7515.00 less per patient. Based on their data, the authors concluded that a formal education and support
intervention substantially reduced adverse clinical outcomes and costs for patients with heart failure.

Rich, Beckham, Wittenberg et al. (1995) conducted a prospective, blinded randomized trial of the effect of a nurse-directed, multidisciplinary intervention on rates of admission within 90 days of hospital discharge, quality of life and costs of care for high-risk patients 70 years of age or older who were hospitalized with congestive heart failure.

The intervention consisted of comprehensive patient and family education, a prescribed diet, social-service consultation and planning for an early discharge, a review of medications, and intensive follow-up (Rich et al., 1995). A total of 282 patients participated, 142 in the treatment group and 140 in the control group. The median age was 79 years old; 63% were women, and 45% were Caucasian. The two groups were well balanced with respect to most baseline characteristics, including New York Heart Association functional class and left ventricular ejection fraction.

Results showed 59 patients in the control group (42.1%) had at least one readmission during follow-up, as compared with 41 patients in the treatment group (28.9%; 95% CI, p=0.03). Multiple readmissions were more prevalent in the control group (16.4%, vs. 6.3% in the treatment group; 95% CI for the difference, 2.8 to 17.4%; p=0.01), so that the total number of readmissions during follow-up was reduced by 44.4% (p=0.02).

The Chronic Heart Failure Questionnaire was administered to a subgroup of 126 patients, control group (N=59) and treatment group (N=67). This subgroup was used to minimize the burden placed on participating subjects. Although the quality of life improved in both groups, there was significantly more improvement in the treatment group (22.1% vs. 11.3%, p=0.001).
The costs of hospital readmissions were higher in the control group by an average of $1,058 per patient ($3,236 vs. $2,178, p=0.03). As a result, the overall cost of care was higher in the control group by $460, or an average of $153 per patient per month.

The authors recommended the use of the Agency for Health Care Policy and Research (AHCPR) published guidelines for the evaluation and care of patients with congestive heart failure. They felt this study provided strong support for the AHCPR guidelines by demonstrating that a multidisciplinary intervention can significantly reduce the rate of readmission, improve the quality of life, and decrease the overall cost of medical care (Konstam, Dracup &, Baker, 1994).

Dahl and Penque (2000) conducted a study to determine if an inpatient heart failure program managed by an Advanced Practice Nurse (APN) affects patient outcomes. The goal of the APN-directed program in this study was to improve the care of patients hospitalized with CHF while decreasing the high use of resources caused by frequent and complicated admissions. The program also aimed to improve clinical management and the patient's educational and support needs (Dahl & Penque, 2000).

A quantitative, quasi-experimental design was used. The study population consisted of 1,192 patients who were hospitalized for CHF either before the existence of an APN-directed CHF program (preprogram group, n=583) or after program initiation (program group, n=609). The average age of the program group was 75 years and 96% Caucasian; the average age of the preprogram group was 72 years and 95% Caucasian.

The APN served as the care coordinator and coordinated the services of the social worker and dietician depending on the patient’s compliance, knowledge level, and other needs. The education sessions were taught by the APN and included the definition and causes of CHF, drug use and compliance, daily weights with parameters, 2-gram sodium diet restriction, activity
guidelines, and symptoms to report. Other topics were routinely discussed. Another role of the APN was to investigate the clinical management of patients with CHF and make suggestions according to the guidelines established by the multidisciplinary team, when appropriate.

*T*-tests were used as the statistical tool to evaluate the difference in length of stay between the preprogram and program groups. Chi-square analysis was used to analyze 15-day, 30-day, and 90-day readmission rates. A significant difference existed in length of stay for those in the program group with a 14% reduction (p value <0.001). There was a 36% reduction in deaths for the program group as compared with the preprogram group (p<0.05). Patients in the program group were rehospitalized less, but this difference was not statistically significant in the 15-day readmission category (p=0.763). However, it was statistically significant in the 30-day readmission category for CHF (p=0.026), 30-day total readmission category (p=0.027), and in all categories for 90-day readmissions (CHF p=0.000, total admissions p=0.002).

Significant improvements were found in all patient outcomes in the program group compared with the preprogram group. Length of stay, in-hospital mortality rates, and readmission rates for the program group patients were significantly lower. The researchers concluded that a multidisciplinary APN-directed heart failure program might decrease the need for rehospitalizations of heart failure patients. Although sufficient data were not available from other studies regarding the effects on length of stay and mortality rates, this study found a significant positive trend existed in these variables.
**Discussion and Recommendations for Health Care Providers**

Successful management of CHF requires an active partnership between the patient and health care provider. This can be facilitated through a focused patient education plan that begins in acute care and has continuity into the outpatient and even community setting. Elements of the education plan involve both teaching content areas and self-management behaviors. Preparing CHF patients and their families to manage their disease, symptoms, and treatment is an essential part of providing care for this population. Traditional patient education is the standard of care for achieving this goal. However, high readmission rates and incidence of exacerbated acute CHF reflect that patient self-management may not be as effective as needed (Dunbar, Jacobson & Deaton, 1998). Nonadherence to treatment plans is a frequently cited cause, and one possible reason for high nonadherence rates may be the inability to understand the treatment plan. Thus, the need to go beyond the traditional patient education approach to achieve a more solid relationship between patient learning and effective health behavior is apparent. This is in keeping with Orem’s theory that proposes that knowledge is a power that enables self-care; it must be specific and organized around the meeting of known self-care requisites.

Successful treatment of CHF involves a multifaceted approach. Comprehensive patient education and clinical follow-up in combination with pharmacological therapy contribute to optimal results. Nonpharmacologic interventions, which are receiving more attention in clinical trials, have had beneficial results in overall patient outcomes (Weinberger & Kenny, 2000). A study published in 1998 (Frattini et al., 1998) provided patient education on medications, risk factors, anatomy and physiology of heart failure, psychological factors, activity and diet. The
results illustrated the importance of providing a needs-based educational program for CHF patients.

The Oregon Medicare Peer Review Organization (OMPRO) has published a comprehensive patient education program that can be utilized freely by any institution. This program was revised and reprinted with permission from The Jewish Hospital of St. Louis and authored by health care providers that have researched the effects of patient education on the CHF population (Rich et al., 1995). Extensive development and implementation of a highly successful, comprehensive CHF patient education program, in conjunction with a nurse practitioner, at Providence Yakima Medical Center in Yakima, Washington has been researched. These successful programs and research evidence were utilized in developing the following components for a comprehensive CHF patient education program with the hope that increased knowledge will increase patients self-care behaviors, and in turn, will improve disease management outcomes and quality of life for patients with CHF.

Assessment, evaluation and understanding of the individual educational needs of patients and their families is necessary before application of a comprehensive program in order to provide optimal education. An example of program topics, Advanced Practice Nurse (APN) interventions and expected patient self-care behaviors is illustrated in the following, Table 1.
Table 1

Recommendations for Advanced Practice Nurses:

Components of a Comprehensive CHF Patient Education Program

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<th>APN INTERVENTIONS</th>
<th>EXPECTED SELF-CARE BEHAVIORS</th>
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<tr>
<td>Congestive Heart Failure: Causes and Symptoms</td>
<td>Educate regarding definition, physiology, causes, and common symptoms of CHF. Include risk factors.</td>
<td>Increased patient knowledge and understanding of diagnosis, prognosis and signs and symptoms of CHF to monitor. Patient can verbalize simple explanation and symptoms of CHF and identifies when to report symptoms.</td>
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<tr>
<td>Pharmacological Therapy</td>
<td>Manage appropriate medication regimen, which may include (but not limited to): ACE inhibitors (ARB if not tolerated), diuretics, beta-blockers and digoxin. Educate regarding medication name, dose, indication, proper use and possible side effects</td>
<td>Patient will effectively adhere to prescribed medication regimen, understand indications, use and side effects. Will understand when to notify health care provider of unexpected or dangerous reactions. Will keep list or be able to name medications, dose and indications for use.</td>
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<tr>
<td>Diet</td>
<td>Dietary education to include, but not limited to: Low sodium diet (2-3 grams per day), alcohol avoidance, and fluid restriction if appropriate.</td>
<td>Consultation with registered dietician with APN reinforcement regarding necessary dietary changes. Patient adherence to recommendations.</td>
</tr>
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<td>Daily Weight Monitoring</td>
<td>Teach how and when to monitor weight daily. Provide instructions for actions to take for weight gains, such as sliding scale diuretics, decreasing sodium intake, fluid restriction or contacting health care provider.</td>
<td>Patient will have a reliable scale and adhere to monitoring weight daily. Understands and performs appropriate actions for excessive weight gains.</td>
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<tr>
<td>PROGRAM TOPIC</td>
<td>APN INTERVENTIONS</td>
<td>EXPECTED SELF-CARE BEHAVIORS</td>
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<td>Activity and Rest</td>
<td>Educate regarding appropriate amount and balance of exercise and rest. For mild to moderate CHF, recommend daily exercise, starting slowly with a goal of 20-30 minutes per day.</td>
<td>Patient will establish a daily activity routine and identify need for rest periods. Identifies dangerous signs/symptoms of activity intolerance and stops activity.</td>
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<td>Psychological and Other Types of Support</td>
<td>Involve significant others in CHF educational process. Coordinate support by ancillary services e.g. mental health therapy, exercise therapy, community services, etc. to assist with lifestyle changes and coping mechanisms. Provide patient with list of useful books, publications and web sites regarding CHF and its management.</td>
<td>Patient will understand support services available and will maintain a list of important phone numbers and support persons or agencies. Patient will utilize education tools and display motivation to seek information.</td>
</tr>
<tr>
<td>Follow-Up</td>
<td>Develop and execute an individualized follow-up plan with patient and/or significant others. Include scheduled outpatient visits, educational offerings and telemanagement.</td>
<td>Patient adheres to follow-up plan and communicates as necessary with health care provider.</td>
</tr>
</tbody>
</table>
Significance for Advanced Practice Nurses

The success of research in nursing depends on the theoretical groundwork such as that of Orem’s Theory of Self-Care. It is important that the fields of nursing and associated sciences understand the importance of providing high quality, comprehensive education for disease management to enhance self-care behaviors and improve outcomes.

The unique role of the Advanced Practice Nurse (APN) enhances not only patient education but also provides necessary follow-up and positive reinforcement. APN’s can guide and instruct those lacking in adequate self-care actions to achieve behaviors that will help to manage chronic illness. Through partnering, the APN and the patient, both accept responsibility for enhancing individual confidence and self-efficacy in the face of CHF management.

While CHF is a complicated chronic condition, the patients’ ability and willingness to demonstrate self-care behaviors greatly improves overall health and quality of life. This in turn plays an important role in the reduction of hospitalizations.

The assessment and prevention of factors that precipitate acute decompensation in patients with CHF is an important objective in the care and management of such patients (Michaelsen, Konig & Thimme, 1998). The APN plays an integral role in providing patient education and follow-up, which are ways to reduce the incidence of these factors with increased knowledge and self-care by the patient.

The APN is an excellent primary care provider to manage patients with CHF. The APN possesses advanced education and knowledge, expert nursing skills, and the ability to provide primary health care in a compassionate, holistic manner. The role of coordinating care for patients with CHF and collaborating with other members of the health care team benefit this
patient population tremendously. The APN not only brings nursing therapeutics to the treatment but also manages medical aspects of CHF. Because they have training and credentials to medically manage patients and the nursing background to educate patients and their families, APN’s have valuable skills for the management of CHF (Paul, 2000).

Advanced physical assessment and diagnostic skills allow the APN to assess and monitor patients regularly and manage symptoms and treatment of CHF with referral to specialists as necessary. Ongoing counseling with patients and their significant others is another important role the APN performs. APN’s are also skilled in data collection and research, which are important aspects of managing CHF care and future health care modalities.

Research findings confirm the role of the APN as an effective care coordination facilitator (Dahl & Penque, 2000). Although treatment options for CHF are limited, APN’s can assist patients in managing the signs and symptoms of the disease by educating patients about diet, medications, exercise, and the disease process. APN’s and a multidisciplinary team will continue to play an important role in managing this illness and the outcomes of CHF patients.


