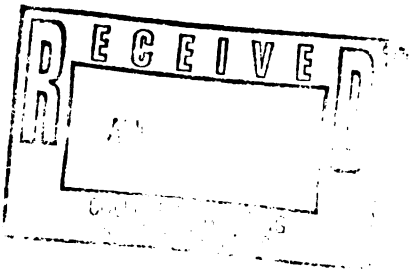
AN EDUCATIONAL/COUNSELING PATHWAY FOR HEART FAILURE PATIENTS

Scholarly Project
for the Degree of M. S. N.
MICHIGAN STATE UNIVERSITY
KATE HILTS
1996



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An Educational/Counseling Pathway for Heart Failure Patients

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ACKNOWLEDGEMENTS

I express my sincere gratitude to my Project Chairperson and Program Advisor, Dr. Sharon King. Her support, guidance, and encouragement over the past two years are greatly appreciated. Thank you to my Project Committee members, Dr. Suzanne Budd and Jacqueline Wright for their patience and support which made this scholarly project possible. Their input and guidance was invaluable. Also, thank you to Dr. John Strandmark and Dr. Jon Robison, Michigan Center for Preventive Medicine, for their guidance and support of this project.

A special thank you to my husband, Tom, for his love, support, and encouragement during my MSN education. Thank you to my parents, John and Joyce Felice, my father and mother-in-law, Fran and Carolyn Hilts, and my brother and sister-in-law, Rob and Liz Hilts. Their help and support over the past two years has made this achievement possible.

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Abstract

Heart disease is the leading cause of death among people 65 years and older. Through advanced technology, there is a decline in mortality from heart attacks, however, due to the increased survival of heart attack victims, along with the aging of our society, mortality from heart failure is growing. The Education/Counseling Pathway for Heart Failure Patients is an application to nursing practice. It is based on a review of the research literature and is supported by Dorothea Orem's self-care theory. The purpose of this pathway is to provide guidelines for counseling and educating the heart failure patient in the primary care setting. The counseling/educative pathway can be used by primary care practitioners to guide care and assist the heart failure patient with increasing self-care skills. The pathway consists of an assessment and educational and counseling interventions including education of disease process, medications, nutrition, exercise, and social support. Studies have shown that through nonpharmacologic interventions, such as these, the functional and emotional status of people with heart failure can be improved and the number of rehospitalizations reduced. The goals of this pathway are to improve patient self-management of heart failure, improve patient quality of life, and decrease costs of care.

An Educational/Counseling Pathway for Heart Failure Patients

There is an increase in numbers of persons over the age of 65 in the United States. Along with the aging of our society comes an increased need for health care to treat chronic conditions. It is estimated that over 80 percent of people over the age of 65 have at least one chronic illness, and in the early 1990's, over 30% of health care dollars were spent on care for persons over the age of 65 (Hess, 1991). How health care will be provided for this aging population and at what cost, are some of the problems that challenge the health care system.

Purpose of this project

The purpose of this project is to develop a heart failure education/counseling pathway for use in the primary care setting. The pathway will be based on a review of the literature and supported by Dorothea Orem's self-care theory. The pathway will consist of an assessment and educational and counseling interventions. The heart failure pathway will function as a guide for health care providers, and the goal of the pathway will be to promote therapeutic self-care for patients with heart failure while improving quality of life and decreasing costs of care.

Heart disease is the leading cause of death among people 65 years and older. Through advanced technology, there is a decline in mortality from heart attacks (Eriksson, 1995). However, due to the increased survival of heart attack victims, along with the aging of our society, mortality from heart failure is growing. The incidence of heart failure greatly increases with increasing age. The rate of heart

failure at age 50 is about 1%, whereas the rate at age 80 increases to almost 10% (Eriksson, 1995). The incidence among men and women is about equal until the age of 75. After age 75, the incidence of heart failure is greater among women (approximately 8.6%) than men (approximately 5.5%) (Eriksson, 1995). According to the American Heart Association, there are 2.3 to 3 million cases of heart failure in the United States (AHA, 1992).

Heart failure is a chronic syndrome with a diverse number of symptoms leaving patients in a fragile state of health with significant limitations in function (Karmilovich, 1994). This syndrome may be related to left-sided, right-sided, or biventricular heart failure, and the clinical signs and symptoms may represent volume overload or impaired tissue perfusion. Heart failure is usually caused by systolic dysfunction, in which the heart is unable to meet the oxygen demands of the body. When this failure occurs, other mechanisms attempt to compensate. The body increases the amount of blood ejected from the heart by increasing the heart rate and blood volume. Hypertrophy, or thickening, of the heart muscle occurs from an increase in the strength of the heart's contraction. When these compensatory mechanisms fail, the clinical signs of heart failure are seen. The first signs to appear are dyspnea upon exertion, fatigue, and orthopnea. Decreased activity tolerance and edema are also common symptoms of heart failure. The treatment of heart failure includes interventions which decrease the demands on the heart such as reducing the increased blood volume and decreasing afterload by reducing vascular resistance. Treatment includes both medications and lifestyle modification.

The cost of treating heart failure is increasing. Currently, for adults over the age of 65, heart failure is the most common reason for hospitalization, and readmission rates for people with heart failure range from 29 to 47% within three to six months of initial hospitalization (Rich, et. al., 1995). In the United States, hospitalization for heart failure increased over 99% from 1973 to 1986 (Eriksson, 1995). Although rehospitalization rates are increasing, studies indicate that up to one-third of rehospitalizations for heart failure could be prevented through better patient self-management (Hawthorne & Hixon, 1994).

The severity of heart failure and the multitude of symptoms make treatment regimes complex and demanding on patients and their families (Hawthorne & Hixon, 1994). Along with mortality and cost of care outcomes, several recent heart failure studies have included patient outcomes such as physical functioning, psychological well being, social interaction, and other quality of life measures (Grady, 1993; Rich, et. al., 1995; Hawthorne & Hixon, 1994; Karmilovich, 1994). These studies have shown that through nonpharmacologic interventions, such as exercise, nutrition, and social support, the functional and emotional status of people with heart failure can be improved and the number of rehospitalizations reduced. In combination with medications, these counseling and educative interventions are important and necessary components of the comprehensive management of the heart failure patient in primary care. The purpose of this project is to provide a pathway for counseling and educating the heart failure patient in the primary care setting. The counseling/educative pathway will be used by the advanced practice nurse in the

primary care setting to guide care and assist the heart failure patient in increasing self-care skills.

Conceptual framework

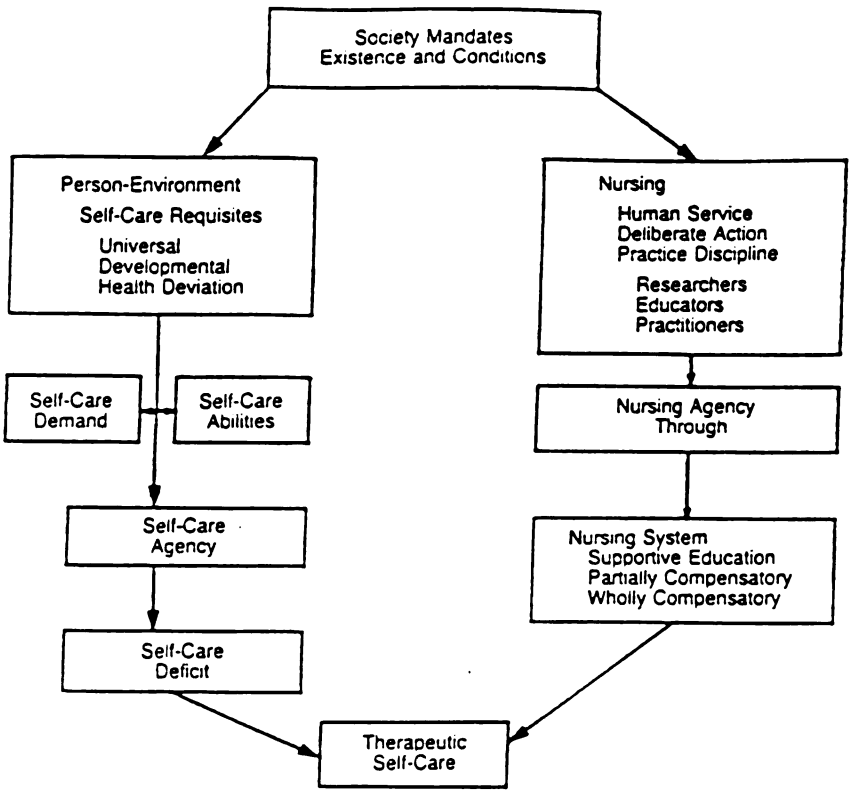

Figure 1. From "Orem's Self-Care Model," by R. L. Johnson, 1989, in Conceptual Models of Nursing, J. Fitzpatrick & A. Whall, Eds., Norwalk, CT: Appleton & Lange.

Dorothea Orem's theory of nursing practice is used as a framework to support the proposed teaching pathway for heart failure patients. Orem's self-deficit theory is a combination of three interrelated theories (Meleis, 1991). The first is the theory of self-care deficit. The concepts in this theory are the most comprehensive and are

central to her overall theory. The concepts of self-care deficits relate to persons with health limitations who are unable to provide continuous, purposeful self-care. The second is the theory of self-care which postulates the types of care that are essential life and describe the purposeful actions which support human function and development. The third theory is the theory of nursing systems that refers to how nursing is used to help individuals meet self-care requisites (Meleis, 1991). (See figure 1.)

Some of the major concepts of Orem's theory of self-care deficit which are used in the model include self-care, universal self-care requisites, developmental self-care requisites, health deviation self-care requisites, self-care demands, self-care abilities, self-care deficits, and the nursing system as supportive education, partially compensatory, and wholly compensatory. Orem's definitions of these concepts clarify the model that supports the education/counseling pathway for heart failure patients.

Self-care is defined as a deliberate, systematic, continuous process that is necessary to continue human function and development (Johnston, 1989). Cultural and social beliefs and ability to learn are factors that contribute to the development of self-care. For example, cultural health beliefs may influence self-care practices, and educational level may influence the development of self-care practices.

Self-care requisites are self-care requirements that are identified as the necessary needs of the individual (Meleis, 1991). The three types of requisites are universal, developmental, and health deviation. **Universal requisites** refer to basic human needs such as sufficient intake of air, food and water, adequate rest, and

social interaction. **Developmental requisites** relate to provisions that promote or allow for developmental growth and progress. **Health deviation requisites** refer to the appropriate care and management of pathological conditions, including treatment of the altered health condition and acceptance of impaired health.

Self-care demand is the extent of self-care required to meet self-care requisites. **Self-care ability** is the individual's ability or resources to perform self-care. A **self-care deficit** occurs if the self-care demand exceeds the individual's self-care ability. Through assessment, the nurse is able to assist the individual in identifying self-care demands and abilities.

Nursing care is delivered to individuals to assist them in meeting their health care needs or requisites. (Meleis, 1991). In the self-care model nursing actions are referred to as **nursing systems**. These include a **wholly compensatory system**, in which the individual is dependent on the nurse for self care; a **partially compensatory system** where the individual requires some assistance with self-care; and **supportive-educative system** for individuals who require information and support to perform self-care.

Heart Failure pathway within the theoretical framework

Orem's self-care theory is used as a framework by incorporating the major concepts of self-care into the development of an education/counseling module (Please see figure 2). Within a **educative/supportive nursing system**, the advanced practice nurse will assess the **self-care requisites** of the heart failure patient. From this assessment, **self-care demands** and **self-care abilities** will be determined, and **self-**

care deficits identified. Educational and counseling goals will be set based on these identified deficits. The heart failure education/counseling pathway would then be implemented to assist the patient in achieving **therapeutic self-care**.

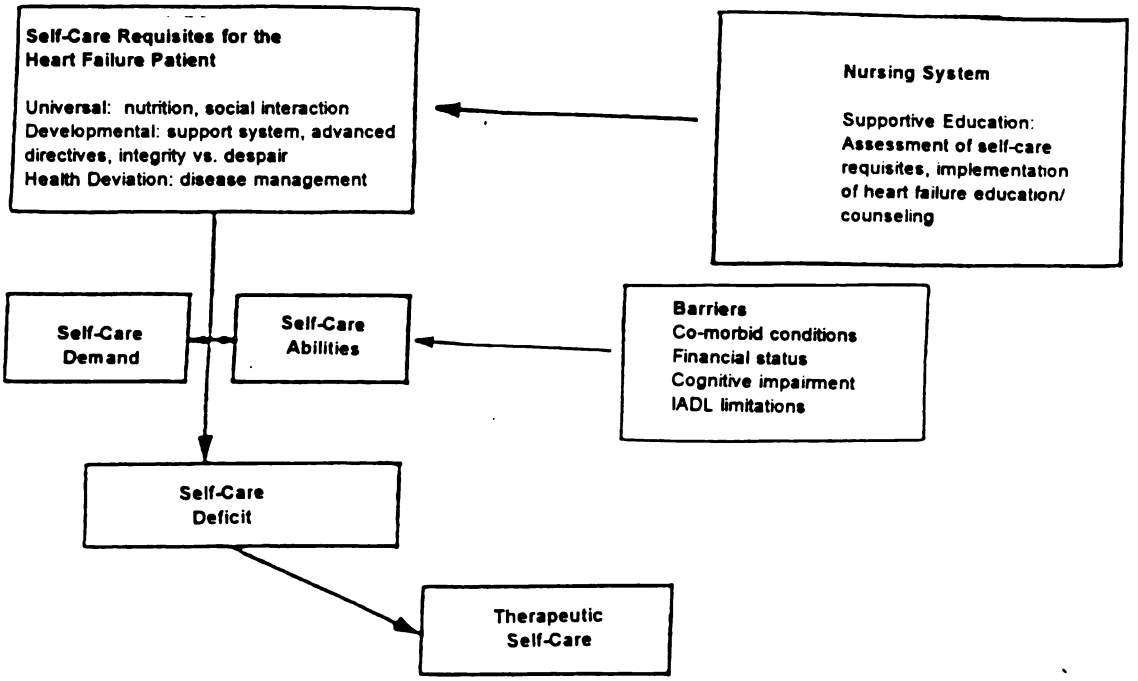

Figure 2. Heart failure pathway within Orem's Self-Care Model. Adapted from "Orem's Self-Care Model," by R. L. Johnson, 1989, in Conceptual Models of Nursing, J. Fitzpatrick & A. Whall, Eds., Norwalk, CT: Appleton & Lange.

In the theory of self care, self care requisites are defined as the universal, developmental, and health deviation needs of the individual. For the heart failure patient, **universal requisites** are basic human needs such as adequate intake of air, nutrition, rest, and social interaction. **Developmental requisites** for the heart failure patient often include those developmental needs in the later stages of life. Integrity versus despair is Erikson's last stage of development. Because heart failure is chronic and progresses over time, it is necessary to assist the patient with

developmental needs throughout the course of the disease. In early stages of heart failure the patient may need assistance with developing a support system and planning advanced directives. As the disease progresses into end stages, the patient should be assisted through the final stages of development by using interventions such as life review or reminiscence. Preparing for death and including family members in planning are also issues related to developmental requisites for the heart failure patient. **Health deviation requisites** for the heart failure patient include all activities necessary to manage the disease. This includes an understanding of the disease process and prognosis, acceptance of condition, health care management through the health care provider, medications, and exercise.

Self-care is a deliberate process that is necessary to continue development and function. For the heart failure patient, **self-care** is the continuous, deliberate process by which the individual is able to continue optimal functioning within the limits of his or her disease. An individual's cultural or educational background may have an impact on self-care. For example, nutrition is an important component of the heart failure patient's self-care. Cultural background may effect the way in which the individual approaches the nutritional aspects of managing his or her heart failure. Culture and education should be taken into consideration when developing a counseling pathway for heart failure patients.

In Orem's theory, self-care demand is referred to as the extent of self-care required to meet the needs of the individual, and self-care ability is the individual's resources to perform self-care. The **self-care demands** of the heart failure patient are

dependent on the severity of the patient's condition. The patient in early stages of the disease will have fewer demands and a greater ability to perform self-care. However, a patient with more advanced disease process will have greater demands and will be less capable to perform self care, and a **self-care deficit** is more likely to occur. The patient with advanced disease will require more resources. The heart failure patient's **self-care abilities** are affected by co-morbid conditions, financial status, cognitive status, and other factors that may affect instrumental activities of daily living. Through the nurse's assessment, patient demands, abilities, and resources are identified.

Nursing systems, as described by Orem, can be viewed as wholly compensatory, partially compensatory, or supportive-educative. Most of the nursing care delivered in a heart failure counseling module is from a **supportive-educative nursing system**. A **partially compensatory system** may be used depending on the assessment of the individual. However, the goal of heart failure education/counseling interventions is to increase the patient's **self-care abilities** through education and support. It is also important to recognize that supportive-educative nursing care is also delivered to the family members of heart failure patients.

Literature Review

The concepts of Orem's theory of self-care are used to define the components of an educational/counseling module for patients with heart failure. In a review of the literature, the effects of heart failure on quality of life measures and the benefits of nonpharmacologic interventions are clearly identified. The nonpharmacologic interventions described in the literature are supported by the self-care theory.

To better understand the nonpharmacologic interventions described in the literature, it is important to identify the goals of implementing such interventions. In a review of the literature, quality of life and cost of care for heart failure patients have been defined and used as outcome measurements for nonpharmacologic interventions (Grady, 1993; Kostis et al, 1994; Hawthorne & Hixon, 1994, Gorkin et. al., 1993). The goal of lifestyle modification and counseling is to improve quality of life while decreasing cost of care. In this literature review, quality of life and cost of care are examined, followed by a discussion of the nonpharmacologic interventions found in the literature.

Quality of life

Quality of life is defined as multifactorial, including physical, psychological, and social interaction components (Grady, 1993). It is also defined as a subjective concept which changes over time. A person's perception of quality of life changes with different life experiences.

Quality of life has been measured using a variety of tools found in the literature. Measurement of physical functioning includes number and severity of disease symptoms and physical functioning, including ability to perform activities of daily living and exercise tolerance (Grady, 1993). Psychological status has been measured through instruments such as the Beck Depression Scale, Hamilton Depression Scale and the Hamilton Anxiety Scale (Kostis et. al., 1994). Other instruments specifically for use with heart failure patients have been developed, and other mood scales have also been used (Gorkin, et. al., 1993; Hawthorne & Hixon, 1994). There has been

less focus on the social component of quality of life (Grady, 1993). However, because of the increased stress associated with the management of heart failure and the increased burden on caregivers, the social domain of quality of life should not be overlooked (Karmilovich, 1994). Components of social interaction include structure and communication patterns of family, vocation, and interaction within the community (Hawthorne & Hixon, 1993).

Cost of care

Cost of care is a second and important goal of lifestyle modification for heart failure patients. Because patients with heart failure have higher hospital readmission rates than any other group, reducing the number of rehospitalizations is used as a measure of cost of care (Eriksson, 1995; Rich, et. al., 1995). Unfortunately, only a few studies include cost of care as an outcome, and none of the studies on exercise in heart failure or social support for heart failure patients used cost of care as an outcome measurement. The nonpharmacologic intervention studies of Rich, et. al. (1995) have shown a reduction in hospital readmissions and overall cost of care, however, more studies are needed to further validate the potential cost effectiveness of lifestyle modification for heart failure patients.

Nonpharmacologic interventions

The nonpharmacologic interventions found in the literature are described in this review of the literature in terms of the patient's self-care requisites, and barriers to self-care ability. Self-care requisites are the universal, developmental, and health deviation needs of the individual. Most of the interventions described in the literature

support the health deviation needs of the heart failure patient, and only a few of the interventions are related to the patient's universal and developmental needs. The literature did not address self-care ability barriers such as co-morbid conditions, financial status or cognitive status. However, according to Orem's theory of self-care, for the patient to successfully achieve therapeutic self care, self-care abilities must be addressed. Therefore, interventions that address self-care ability barriers will also be included in this discussion. Universal interventions are described first, followed by developmental, health deviation, and self-care ability interventions.

Interventions related to universal requisites

In Orem's theory of self-care, universal requisites are referred to as basic human needs such as adequate intake of air, nutrition, rest, and social interaction. The interventions found in the literature which address the universal needs of the heart failure patient include nutritional counseling and emotional and social support (Friedman, 1993; Dracup, et. al., 1994; Hawthorne & Hixon, 1994; Karmilovich, 1994; Kostis, et. al., 1994 & Rich, et. al., 1995). Rest is also discussed in the literature as an important part of management of an acute episode of heart failure (Coats, 1993). After the heart failure patient is stabilized, complete bed rest is not recommended, but adequate rest is still an important part of total well being for the heart failure patient. For the stable patient, however, complete bedrest should be avoided and exercise is encouraged. Further discussion of exercise for the heart failure patient is discussed later along with other health deviation interventions.

The nutritional counseling interventions found in the literature focused on

following a healthy diet and restricting salt intake (Dracup, et al., 1994; Kostis, et. al., 1994; and Rich, et. al., 1995). There are no specific guidelines for restricting sodium intake, and it is unclear if a moderate restriction (2 Gm/day) is necessary or if a mild restriction (3 Gm/day) is as effective. Further research is needed to develop more specific sodium restriction guidelines. A 3-gram sodium diet has been recommended for patients with moderate heart failure who are not on high doses of diuretics. If high doses of diuretics are necessary, a 2-gram sodium diet may be required (Dracup, et. al., 1994). In some of the studies reviewed, a registered dietician provided counseling for reducing dietary sodium (Kostis, et. al., 1994 & Rich, et. al., 1995). Other restrictions such as low-fat, low-cholesterol diets, are not recommended unless the patient is obese (body mass index > 27.8 for men or 27.3 for women) (Kostis, et. al., 1994). Heart failure patients may suffer from a chronic wasting syndrome, and unnecessary dietary restrictions may make this condition worse and place the patient at risk for malnutrition (Dracup et. al., 1994). Other nutritional interventions include advising the patient to eat a well balanced diet with small frequent meals rather than two or three large meals, and avoiding excessive fluid intake (Dracup et. al., 1994). Because alcohol ingestion has been shown to reduce contractility of the heart, the heart failure patient is also advised to avoid alcohol consumption or at least keep alcohol intake to a minimum, less than one drink a day (Dracup et. al., 1994; Kostis, et. al., 1994; Rich, et. al., 1995).

Social interaction is another universal self-care need described by Orem in which the individual must maintain "a balance between solitude and social interaction"

(Meleis, 1991, p. 393). People with heart failure are at risk for social isolation due to the physical limitations from symptoms such as fatigue and decreased level of endurance. Also, because heart failure occurs most often in the patient's sixties or later, social circles and support networks may change or decrease because of life events such as retirement or death of a spouse (Friedman, 1993). In several studies the issues of the heart failure patient's social interaction and social support were addressed through assessment (Friedman, 1993; Grady, 1993; Hawthorne & Hixon, 1994; Karmilovich, 1994). Friedman (1993) studied sources of support for older women with heart failure and found that the subjects identified spouses most frequently as the source of support, followed by children, then friends and neighbors. Although these studies did not include interventions for addressing social support issues, through assessment the Advanced Practice Nurse is able to identify patients with a limited support network and assist with identifying and developing additional sources of support.

Interventions related to developmental requisites

Developmental self-care requisites are defined by Orem as provisions that allow for developmental progress (Meleis, 1991). Because the heart failure patient is most often over sixty, these types of self-care requisites include developmental needs in the last stage of life. To better understand the developmental needs of the older adult it is helpful to examine some of the unique processes of adults in this last stage of life that contribute to healthy aging.

The older adult, unlike the younger person, has experienced, and has a

perception of, the entire life cycle, and older people have a desire to leave behind something from their life experience (Butler, Lewis, & Sunderland, 1991). The "elder function" (Butler, Lewis, & Sunderland, p. 80) is a process which is related to the desire to leave behind a legacy. This process involves the tendency for the older adult to share their acquired wisdom and experience with the younger generation. These processes closely relate to Erikson's (1987) last stage of development, "integrity vs. despair". In this last stage, the meaning and significance of one's life are an integration of the person's life experiences and accomplishments. It is through a person's wisdom that he or she shares this meaning of life with others. This process may be difficult for the person with heart failure, because he or she has the additional task of working through the grief of a series of losses related to health and function. Along with declining health, the person may also encounter decreased self esteem. In order to move successfully through the last stage of development, the older adult with heart failure must work through these issues before he or she can identify the meaning of his or her life.

Butler, Lewis, and Sunderland (1991) refer to another process in old age that involves planning for the care of cherished possessions. The authors note the importance of family support and involvement in planning for the older person's loss of these possessions upon his or her death. Other issues that must be addressed at this stage of life involve durable power of attorney for medical affairs and other health care decisions. Family members need to be actively involved in health care planning and must be supportive of the older adult's decisions about medical care and life support

(Dracup, et. al., 1994).

The interventions related to developmental needs found in the heart failure literature included involving family members in the patient's advanced directives and preparing the patient and family for death by educating them regarding the prognosis of heart failure (Dracup, et. al., 1994). Unfortunately, heart failure research has failed to address other developmental needs of this population such as the importance of synthesizing the meaning of one's life and leaving a legacy after death. Although the heart failure studies have not included interventions to meet these developmental needs, research on reminiscence and life review provides the practitioner with tools to assist the older person through the last stage of development. Lappe (1987) studied life review with a group of older adults and found that the intervention increased self-esteem and assisted the individuals in "reaffirming a sense of identity" (p. 15). Moore (1994) studied reminiscence therapy and found that the intervention provided an chance for the older adult to work through the last developmental stage of life. Future research on heart failure interventions needs to focus on addressing the developmental needs of this population. By studying the effects of using reminiscence therapy with heart failure patients, researchers may be able to identify this intervention as a useful tool in promoting the total health of the person with heart failure.

Interventions related to health deviation requisites

In Orem's theory of self-care, health deviation requisites are those needs which relate to the appropriate care and management of the patient's condition. For the person with heart failure this includes attaining an understanding of the disease

process and prognosis, accepting the condition, and managing the condition (along with the efforts of the health care provider) through medications and exercise.

Studies have indicated that the patient's thorough understanding of the disease process and pathophysiology of heart failure is essential for successful disease management (Dracup et. al., 1994 & Rich et. al., 1995). Dracup, Baker, Dunbar and colleagues (1994) noted that the term "heart failure" may be extremely frightening to patients, and providers should consider this when explaining pathophysiology. Also included in heart failure education are expected signs and symptoms and symptoms of worsening failure (Dracup et. al., 1994; Hawthorne & Hixon, 1994; & Rich et. al., 1995). Patients should be taught to self-monitor their heart failure through daily weights. A symptom log or record may also be useful in helping the patient identify when heart failure is worsening and when to take action (Hawthorne & Hixon, 1994). Hospital readmissions can be avoided through careful symptom monitoring and early intervention for acute exacerbation of heart failure.

Along with understanding the disease process, to successfully manage the disease it is necessary for the person with heart failure to accept his or her condition. This can be achieved through involvement of the family in the patient's plan of care, assisting the patient and family in clarifying responsibilities, and using other interventions such as support groups, stress management, and relaxation (Kostis, et. al., 1993 & Dracup et. al., 1994).

The heart failure patient must also have a good understanding of his or her treatment regimen, especially prescribed medications. The patient should know each

medication, the correct dose and frequency, its action and effect on the disease process, and potential side effects (Dracup, et. al., 1994). Written medication schedules or calendars and pillboxes may be useful, especially for those patients taking several medications (Hawthorne & Hixon, 1994 & Dracup, 1994). Patients should also be advised to carry a list of their medications at all times in case of an emergency. Keeping the family updated on the patient's medication regime may help reinforce patient adherence to the treatment plan. The provider should also assess the patient's financial situation in regards to medication. Prescribed medications that the patient cannot afford will certainly decrease medication adherence.

Until recent years, heart failure patients were encouraged to rest and avoid strenuous activity with the belief that their condition would deteriorate with increased activity (McKelvie, et. al., 1995). In the 1980s, researchers started to show the benefits of exercise training in patients with heart failure (Coats, 1993; Dracup et. al., 1994; Kostis et. al., 1994; McKelvie et. al., 1995). Most of the exercise studies found in the literature included heart failure patients with a New York Heart Association functional class of I -III. Those patient with unstable or class IV failure were not included in these exercise trials. Benefits of exercise are primarily associated with an improvement in peripheral circulation resulting in improved muscle strength and increased endurance. These changes have a positive affect on the patients activity tolerance and ability to perform activities of daily living (Coats, 1993; Dracup et. al., 1994; Kostis et. al., 1994; McKelvie et. al., 1995).

Patients must begin exercise slowly, increasing activity over a period of several

months (Dracup, et. al., 1994). Patients should monitor symptoms and alter their exercise regimen according to level of fatigue. A walking program is often the best choice for patients. Patients should be instructed on exercise safety, taught how to monitor pulse, and educated about signs and symptoms signaling when to stop exercise, such as sudden increased shortness of breath, increased fatigue, or chest pain. The positive effects from a successful exercise program include increased endurance, activity tolerance, and self-esteem (Coats, 1993; Dracup et. al., 1994; Kostis et. al., 1994; McKelvie et. al., 1995). Also, because exercise trials have not included patients with unstable or class IV heart failure, it is important for the practitioner to assess the patient's functional class and develop an exercise program that is fitting for the individual, keeping in mind that exercise may not be an appropriate intervention for those with advanced disease.

Interventions related to self-care ability barriers

Factors that may be barriers to self-care ability include co-morbid conditions (such as arthritis or lung disease), financial status, cognitive status, and limitations in instrumental activities of daily living (IADLs). Co-morbid conditions will affect how other universal, developmental, and health deviation interventions will be used. For example the heart failure patient with arthritis will require a different approach to exercise interventions to accommodate for limited mobility. Likewise, the diabetic heart failure patient will have different nutritional needs. The patient's cognitive status will also impact how education interventions are implemented. Most of the education

and counseling will be directed toward the family for the heart failure patient experiencing memory loss.

Financial status will also impact interventions. The provider must assess the financial situation of each individual to identify potential problems. For example, the low-income patient may have difficulty paying for medications or arranging needed help in the home. Interventions for these situations may include seeking prescription assistance programs through pharmaceutical companies or connecting the patient with the appropriate community resources.

Finally, the patient's ability to perform instrumental activities of daily living (IADLs) should be assessed. The patient who is unable to carry out activities such as shopping, laundry, and cooking will require additional interventions to meet these needs. Some of these needs may be met through tapping into the patient's support system. However, some patients may need to be connected with community resources to meet these needs.

Relationship between universal, developmental, health deviation, and self-care ability interventions

The interventions reviewed from the literature were described as they related to Orem's self-care requisites and barriers to self-care ability. Universal, developmental, and health deviation self-care requisites are defined in terms of the varying needs of an individual, however, these human needs are interwoven (Johnston, 1989). The heart failure interventions found in the literature that address these needs are also interrelated. When applying these interventions in practice it is important to

understand that they often address the individual's needs within more than one self-care requisite domain. For example, through exercise training, an intervention for a health deviation requisite, the heart failure patient may improve self-esteem. This will also assist the patient with reaffirming a sense of identity, a developmental self-care requisite. The barriers to self-care ability that are identified will also affect the interventions used. For example, the arthritic heart failure patient will require a different approach to exercise training due to limited mobility and pain. Based on assessment, the practitioner is able to choose interventions which will best meet the universal, developmental, and health deviation needs of each individual while maximizing self-care abilities.

Development of a heart failure counseling pathway

A heart failure educational and counseling pathway was developed based on Orem's theory of self-care and a review of the literature. The studies reviewed supported a number of counseling and educational interventions for people with heart failure and addressed the self-care needs of this population. The goal of the pathway is to promote therapeutic self-care of the person with heart failure. Based on the literature, the proposed pathway includes an assessment and educational and counseling interventions.

The assessment is used to determine the patient's self-care demands and self care abilities, as well as the universal, developmental and health deviation needs. The assessment addresses the patient's level of knowledge regarding heart failure including pathophysiology, current self-care practices, and understanding of prescribed

treatment and medications. A health history to assess for co-morbid conditions that may impact self-care ability is also included. The assessment also addresses the patient's diet, level of physical activity, support network, family relationships, coping strategies, and barriers to learning. The goal of this assessment is to identify the patient's self-care deficits. (Please see Appendix A for the assessment tool.)

The counseling and educational interventions address the needs identified in the assessment. The educational and counseling pathway includes education on the pathophysiology of heart failure, including signs and symptoms and symptoms of worsening failure, counseling regarding the prognosis of the disease, education focused on nutritional recommendations and physical activity, instruction on medications, counseling regarding advanced directives, and interventions for self-care ability barriers such as limitations from co-morbid disease or financial difficulties. (Please see Appendix B for counseling/educational module.)

The assessment and counseling/educational components of the proposed pathway are based on the interventions found in the literature and Orem's self-care theory. The development of such a pathway facilitates the heart failure patient in attaining therapeutic self-care by addressing the universal, developmental, and health deviation needs, and barriers to self-care ability.

Utilization of the heart failure pathway

The practitioner uses the heart failure assessment to determine the self-care deficits of the individual and develop a educational/counseling plan. The success of the education/counseling pathway is dependent on a thorough assessment. The

assessment is divided into eight different areas followed by a summary of self-care deficits, education/counseling goals, and individual education/counseling plan. Each assessment area will be described followed by a brief discussion of the use of the summary portion of the assessment.

Assessment of the patient's knowledge regarding heart failure, the disease process, prognosis, and current self-care practices will allow the practitioner to determine the patient's needs for education on the disease process as well as the patient's current symptoms management. A health history is included to assess for co-morbid condition that may impact self-care ability such as diabetes or arthritis. The next area of assessment is current medications. By assessing the patient's understanding of prescribed medications, the practitioner will be able to address knowledge deficits through education and assist the patient with choosing a medication system that will promote medication adherence.

The assessment of the patient's diet should include general knowledge of healthy eating, current eating patterns, fluid intake, and alcohol and sodium intake. The practitioner should ask how food is prepared, for example, is salt used in preparing food and/or at the table. It is also important to know who does the grocery shopping and cooking in the household. Some of the education and nutrition counseling will have to be directed to the person who is buying and preparing food.

The focus of the physical activity assessment should be current level of activity and physical limitations. A physical activity restriction questionnaire (PAR-Q) is a useful tool in recognizing potential problems that would interfere with starting an

exercise program. It is also important to assess the patient's activity interests. This assessment will help the practitioner and patient develop a safe and enjoyable activity program that will provide maximum health benefits.

Because of the multiple symptoms which cause physical limitations for the heart failure patient and the complexity of treatment, a thorough assessment of current coping strategies along with screening for depression and anxiety are an essential part of the assessment. The patient's level of stress, depression, and anxiety have a great effect on disease management and quality of life. Equally important is an assessment of the patient's support system and relationships with others. Through an assessment of stress management and family relationships the practitioner can help the patient and family to understand and accept the disease prognosis, plan advanced directives and cope with the physical and mental demands of heart failure.

After assessment of the eight areas is completed, the practitioner summarizes the patient's self-care deficits and together, the practitioner and patient set education/counseling goals. From these goals a plan is developed. The plan is dependent on the patient's identified needs and goals. For example, the patient and practitioner decide which education/counseling areas should be addressed first, and what interventions will be most beneficial for the patient. For many patients, education on the disease process will provide a basis for other education/counseling interventions. However, some individuals may have problems with stress management or family relationships that must be addressed before other interventions will be effective.

The education/counseling pathway is divided into six major areas: disease process, psychosocial adjustment, nutrition, physical activity, medications, and self-care barrier interventions. Each area is further divided into specific education/counseling interventions along with goals for each intervention. The practitioner documents whether goals are met or not met and summarizes the patient's progress. If further education/counseling is needed in a specific area, the practitioner documents this in the plan for the next patient visit.

Ideally, individual counseling sessions should be set up to work through the heart failure pathway with each patient. However, this may not be possible due to lack of reimbursement for such interventions. In the primary care setting, different content areas may be covered or reviewed at each follow-up visit with the heart failure patient. With careful documentation and evaluation of cost and quality of life outcomes, insurance companies may soon realize the benefits of covering education/counseling sessions for heart failure patients.

Target group for heart failure education/counseling

A person with any class of heart failure may benefit from education and counseling. Most of the education/counseling interventions found in the literature included any patient with a diagnosis of heart failure in the studies (Hawthorne & Hixon, 1994; Kostis, et. al., 1994; & Rich, et. al., 1995). However, most of the exercise intervention studies reviewed included heart failure patients with a New York Heart Association functional class of I - III (McKelvie, et. al., 1995). Those patients with unstable or class IV heart failure were not included in exercise trials. Therefore it

is important for the practitioner to carefully assess the heart failure patient before counseling on exercise interventions.

Evaluation of the heart failure pathway

The goals of this pathway are improved patient self-management of heart failure, improved patient quality of life, and decreased cost of care. (Please see Appendix C for an evaluation protocol.) Improved self-management may be assessed through the patient's symptom management, nutritional status, physical activity level, and medication adherence. Symptom management can be assessed through a symptom and weight log maintained by the patient, as recommended by Hawthorne and Hixon (1994). The patient monitors and records daily weights and symptoms, and this record is reviewed at each follow up visit. Medication adherence may also be evaluated through the use of a weekly medication calendar or schedule (Hawthorne & Hixon, 1994). An exercise log is another useful tool for evaluating physical activity. Patients should record time of exercise, type of activity, and exercise tolerance. These tools are useful for evaluating the patient's progress as well as reviewing and updating education and counseling goals. Nutrition should be evaluated and discussed at each visit with an emphasis on sodium restriction and fluid restriction. It is important to evaluate the patient's understanding of nutrition guidelines as well as the person or family member responsible for preparing meals.

Improved quality of life can be evaluated by examining the patient's level of anxiety or depression, effective coping strategies, adequate support system, and effectiveness of family communication. Several tools can be used for evaluating these

aspects of quality of life. The Beck Depression Scale and the Hamilton Anxiety Scale are two tools that have been used with heart failure patients (Kostis et. al., 1994). The Living with Heart Failure Scale is a short tool used to measure the impact of heart failure on quality of life (Gorkin et. al., 1993). A measure of social support used by Friedman (1993) is the Inventory of Socially Supportive Behavior. This instrument examines the patient's perception of social support. These four tools, the Beck Depression Scale, the Hamilton Anxiety Scale, the Living with Heart Failure Scale, and the Inventory of Socially Supportive Behavior have been used in previous studies to evaluate the various aspects of quality of life, and would be useful for evaluating the quality of life outcomes from the heart failure pathway. Although there is not a specific tool used to measure family communication, this should be addressed at each visit. The nurse practitioner can facilitate open communication between family members on issues such as advanced directives.

Decreased cost of care can be evaluated by looking at the number of rehospitalizations for each heart failure patient. Only a few studies found in the literature used cost of care as an outcome measure. Most outcomes were related to quality of life or improved activity tolerance (as in the exercise studies). Rich and colleagues (1995) followed readmission rates for 90 days post hospital discharge. By tracking patients' rehospitalizations, cost of care can be easily evaluated.

Another essential part of evaluating this heart failure pathway is patient satisfaction. Patient satisfaction is becoming an important part of evaluation within the managed care environment and can be easily assessed through a patient satisfaction

survey. A short satisfaction tool can be created that relates to the education/counseling interventions implemented in this pathway.

Implications for advanced nursing practice and primary care

The rapid restructuring of the health care delivery system is creating many challenges for the advanced practice nurse. Primary care providers are challenged to deliver quality health care at a lower cost. Nurse practitioners are able to provide high quality, cost effective care within the primary care setting. However, the challenges facing nurse practitioners today are in the areas of education, research, and program development. It is in these areas that the nurse practitioner will have a powerful effect on health care restructuring. This heart failure pathway has several implications for the nurse practitioner in primary care including education, research, and increased continuity of care.

Advanced nursing education must institute changes in curriculum that will provide the nurse practitioner with the skills to develop and utilize pathways, such as the heart failure pathway. The nurse practitioner must be able to evaluate the needs of the primary care patient population, extract quality research from the literature, and apply learned theories to begin the development of patient care pathways. By applying existing research within in a theory framework, the nurse practitioner can create pathways that guide patient care while producing positive patient outcomes and reducing cost of care. The nurse practitioner can have an impact on nursing education programs by providing the guidance and information needed to reshape nursing curriculum.

Advanced nursing education must also continue to provide nurses with the foundation to study the outcomes of patient care pathways. Through research, the nurse practitioner is able to document the outcomes of using interventions from pathways. The nurse practitioner is also able to contribute research in areas that are lacking in current literature. For example, only a few heart failure studies found in the literature use cost of care as an outcome measurement. The nurse practitioner can use cost as an outcome in future intervention studies to further validate the cost effectiveness of implementing an education/counseling pathway for heart failure patients. By continuing research and documenting outcomes, nurse practitioners will have an impact on the delivery of primary care.

An important component of primary care is continuity of care. Given the complexity of today's health care system and the increased demands placed on providers, it is often not possible for one provider alone to deliver care to an individual patient. Even within the same primary care practice, a patient may see several different providers. This situation may be the cause of fragmented care and, as a result, patient needs may go unmet. By educating other professionals on the use of pathways, such as the heart failure education/counseling pathway, the nurse practitioner will promote continuity of care within the primary care setting. Other providers can see the patient's progress documented in the pathway and continue with the appropriate assessment and education/counseling interventions.

The heart failure education/counseling pathway can be used by the nurse practitioner in the primary care setting to improve patients' quality of life and decrease

costs of care. However, more research is needed to document the outcomes of using such a pathway. Through education and research the nurse practitioner will be able to document the effectiveness of the heart failure pathway and continue to develop other patient care/education pathways for use in primary care.

References

American Heart Association (1992). Heart and stroke facts and statistics. Dallas: American Heart Association.

Butler, R. N., Lewis, M., & Sunderland, T. (1991). Aging and health: Positive psychological and biomedical approaches. New York: Macmillan Publishing Company.

Coats, A. J. (1993). Exercise rehabilitation in chronic heart failure. Journal of the American College of Cardiology, 22(4), 172A-177A.

Dracup, K., Baker, D. W., Dunbar, S. B., Dacey, R. A., Brooks, N. H., Johnson, J. C., Oken, C., & Massie, B. M. (1994). Management of heart failure II: Counseling, education, and lifestyle modifications. Journal of the American Medical Association, 272(18), 1442-1446.

Eriksson, H. (1995). Heart failure: A growing public health problem. Journal of Internal Medicine, 237, 135-141.

Friedman, M. M. (1993). Social support sources and psychological well-being in older women with heart disease. Research in Nursing & Health, 16, 405-413.

Gorkin, L., Norvell, N. K., Rosen, R. C., Charles, E., Shumaker, S. A., McIntyre, K. M., Capone, R. J., Kostis, J., Niaura, R., Woods, P., Hosking, J., Garces, C., Handberg, E., Ahern, D., K., & Follick, M. J. (1993). Assessment of quality of life as observed from the baseline data of the studies of left ventricular dysfunction (SOLVD) trail quality-of-life substudy. The American Journal of Cardiology, 71(5), 1069-1073.

Grady, K. L. (1993). Quality of life in patients with chronic heart failure. Critical Care Clinics of North America, 5(4), 661-670.

Hawthorne, M. H. & Hixon, M. E. (1994). Functional mood disturbance and quality of life in patients with heart failure. Progress in Cardiovascular Nursing, 9(1), 22-32.

Hess, B. B. (1992). Growing old in America in the 1990s. In B. B. Hess & E. W. Markson (Eds.), Growing old in America (pp. 5-22). New Brunswick, NJ: Transaction Publishers.

Johnston, R. L. (1989). Orem's self-care model for nursing. In J. J. Fitzpatrick & A. L. Whall (Eds.), Conceptual models of nursing: Analysis and application (pp. 165-184). Norwalk, CT: Appleton & Lange.

Karmilovich, S. E. (1994). Burden and stress associated with spousal caregiving for individuals with heart failure. Progress in Cardiovascular Nursing, 9(1), 33-38.

Kostis, J. B., Rosen, R. C., Cosgrove, N. M., Shindler, D. M. & Wilson, A. C. (1994). Nonpharmacologic therapy improves functional and emotional status in congestive heart failure. Chest, 106(4), 996-1000.

Lappe, J. M. (1987). Reminiscing: The life review therapy. Journal of Gerontological Nursing, 13(4), 12-16.

McKelvie, R. S., Teo, K. K., McCartney, N., Humen, D., Montague, T. & Yusuf, S. (1995). Effects of exercise training in patients with congestive heart failure: A critical review. Journal of the American College of Cardiology, 25, 789-796.

Meleis, A.I. (1991). Theoretical nursing: Development & progress. New York: J. B. Lippincott Company.

Moore, B. G. (1992). Reminiscing therapy: A CNS intervention. Clinical Nurse Specialist, 6(3), 170-173.

Rich, M. W., Beckham, V., Wittenberg, C., Leven, C. L., Freedland, K. E. & Carney, R. M. (1995). A multidisciplinary intervention to prevent the readmission of elderly patients with congestive heart failure. The New England Journal of Medicine, 333(18), 1190-1195.

Patient Name_____
Provider _____

Appendix A
Heart Failure
Self-Care Deficits Assessment

Assessment	Findings/Date
Knowledge assessment: A. Assess perceptions and understanding of heart failure/ disease process B. Current self-care practices to manage disease	
Health/Self-Care History: Assess present illness and past medical history (childhood/adult illness, hospitalizations, surgeries), and IADL limitations (shopping, laundry, etc.)	
Medications: Assess knowledge of all current prescription and OTC medications, allergies, and prescription coverage (insurance, out-of-pocket, etc.)	
Nutrition: Assess current diet including sodium intake, fluid intake, alcohol consumption, eating patterns, general knowledge of healthy eating, and person shopping and preparing meals (if not patient)	
Physical activity: Assess current activity level, endurance level, and physical limitations (ADL limitations, PAR-Q)	
Stress management: Assess current coping strategies, sleep patterns, include screening for depression as appropriate	

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Family/Psychosocial: Assess support system, relationships with others (household members), current roles/activities including work/ retirement, religious activities, community activities, cultural values, and financial situation	
Barriers to learning: Assess for hearing or vision problems, literacy level, memory/cognitive impairment, education, perceived needs, readiness to change, cultural issues	
Additional assessment: As appropriate	

Identified self-care deficits:

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Education/Counseling goals:

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Individual counseling / education plan:

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Patient Name_____
Provider _____

Appendix B

Congestive Heart Failure
Disease Process Education

Content	Client goal	goal met	not met	Comments
Discuss basic physiology of the heart, including functions of right and left side of the heart (lung and body circulation)	Client will verbalize understanding of the basic function of the heart.			Date_____ Initials_____
Discuss the physiology of heart failure, including the compensatory mechanisms that respond to inadequate heart function.	Client will verbalize understanding of heart failure and compensatory mechanisms.			Date_____ Initials_____
Instruct on the signs and symptoms of left and right sided heart failure.	Client will verbalize understanding of right and left sided failure.			Date_____ Initials_____
Discuss the signs and symptoms which indicate worsening heart failure and actions to take.	Client will verbalize understanding of signs and symptoms of worsening heart failure and verbalize action to take for worsening failure.			Date_____ Initials_____
Instruct on the importance of daily weights, including how to take daily weight and maintain daily weight log.	Client will verbalize understanding of daily weights and maintenance of daily log.			Date_____ Initials_____
Additional instruction as appropriate.				

Progress made toward goal:

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Plan for next visit:

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Patient Name_____
Provider _____

Heart Failure
Physical Activity
Education

Content	Client goal	goal met	not met	Comments
Discuss the effects of inactivity on physical functioning (decreased aerobic capacity and reduced activity tolerance).	Client will verbalize understanding of the effects of inactivity.			Date_____ Initials_____
Discuss the benefits of activity (improved vasodilation, improved activity tolerance, and improved quality of life).	Client will verbalize understanding of the benefits of regular physical activity.			Date_____ Initials_____
Discuss strategies for developing a regular activity program.	Client will list personal strategies for starting a program.			Date_____ Initials_____
Instruct on safety and physical activity, including choosing appropriate exercise, how to check pulse, and appropriate foot wear.	Client will verbalize understanding of exercising safely, and demonstrate how to check pulse.			Date_____ Initials_____
Instruct on s/sx of when to stop exercise (sudden increased SOB or fatigue, chest pain, etc.)	Client will list s/sx of problems and when to stop exercise.			Date_____ Initials_____
Additional instruction as appropriate.				

Progress made toward goal:

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Plan for next visit:

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Patient Name_____
Provider _____

Heart Failure Medication Education

Content	Client goal	goal met	not met	Comments
Instruct client on his/her medication regime, including action of medications, dosage, administration, and potential side effects. (See handouts for medication information).	Client will verbalize understanding of use of each medication.			Date_____ Initials_____
Discuss the use of medication system to assist with medication adherence (pillbox, written schedule, calendar, etc.)	Client will choose appropriate aid to assist with medication adherence.			Date_____ Initials_____
Discuss the importance of adherence to medication regime.	Client will demonstrate adherence to medication regime through the use of schedule or calendar.			Date_____ Initials_____
Additional instruction as appropriate.				

Progress made toward goal:

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Plan for next visit:

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Patient Name_____
Provider _____

Heart Failure
Nutrition Education

Content	Client goal	goal met	not met	Comments
Discuss the effects of sodium on heart failure and the importance of salt restriction.	Client will verbalize understanding of reason for salt restriction.			Date_____ Initials_____
Instruct on sodium content of foods, including how to read food labels for sodium content.	Client will identify high- and low-sodium foods.			Date_____ Initials_____
Discuss alternative seasoning of food to decrease the amount of salt added during food preparation.	Client will identify alternative spices to use during food preparation.			Date_____ Initials_____
Instruct on guidelines for the use of alcohol. Restrict alcohol intake to 1 drink per day.	Client will verbalize understanding of alcohol restriction.			Date_____ Initials_____
Instruct on guidelines for fluid intake, avoiding excessive fluid intake.	Client will verbalize understanding of fluid intake and effects of excessive intake.			Date_____ Initials_____
Discuss other nutritional guidelines only if appropriate (low-fat and low-cholesterol diet for hypercholesterolemia)				Date_____ Initials_____

Progress made toward goal:

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Plan for next visit:

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Patient Name_____
Provider _____

Heart Failure
Psychosocial Adjustment
Counseling and Education

Content	Client goal	goal met	not met	Comments
Discuss the impact of heart failure on lifestyle. Encourage client to openly discuss feelings / concerns. Depression screen if appropriate.	Client will openly discuss feelings.			Date_____ Initials_____
Discuss client support system. Assist client in identifying support (family, friends, church, work, etc.)	Client will identify support persons.			Date_____ Initials_____
Discuss prognosis / disease trajectory with client and family.	Client and family will understand prognosis/ disease trajectory.			Date_____ Initials_____
Discuss the role of family members / support persons, and their involvement in client's advanced directives for medical care	Client will plan advance directives. Family will provide support for client and client's medical decisions.			Date_____ Initials_____
Refer for additional counseling as appropriate.				Date_____ Initials_____

Progress made toward goal:

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Plan for next visit:

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Patient Name_____
Provider _____

Heart Failure
Self-Care Ability Barriers
Education/Counseling

Content	Client goal	goal met	not met	Comments
Discuss the impact of co-morbid disease on IADLs and management of heart failure	Client will identify other illnesses that impact the management of heart failure. Client and provider will identify IADL deficits			Date_____ Initials_____
Discuss client's financial status and potential impact on self-care and disease management	Client will identify potential problems with finances in relation to disease management			Date_____ Initials_____
Discuss appropriate community resources for client such as Area Office on Aging, pharmaceutical assistance programs, etc.	Client will be referred to appropriate resources			Date_____ Initials_____
Additional instruction as appropriate.				Date_____ Initials_____

Progress made toward goal:

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Plan for next visit:

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Appendix C

HEART FAILURE EVALUATION

Expected Outcomes	Evaluation Criteria
Improved self-management of heart failure.	1. Symptom management 2. Nutrition 3. Physical activity 4. Medication adherence
Improved quality of life	1. Level of anxiety and/or depression 2. Effective coping strategies 3. Adequate support system 4. Effective family communication/interaction
Decreased cost of care	1. Decreased number of rehospitalizations
Patient Satisfaction	1. Patient satisfaction survey