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Development of an Evidence-Based Educational Intervention to Advance Nurse Knowledge in Comprehensive Care of Patients With Congestive Heart Failure

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This is to certify that the doctoral study by

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has been found to be complete and satisfactory in all respects,
and that any and all revisions required by
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Walden University
2025

Executive Summary: Staff Education Project

Development of an Evidence-Based Educational Intervention to Advance Nurse Knowledge in Comprehensive Care of Patients With Congestive Heart Failure

by

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Executive Summary Submitted in Partial Fulfillment

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Summary

The Doctor of Nursing Practice (DNP) project was a staff education intervention to increase nursing staff knowledge. Congestive heart failure (CHF) remains one of the leading causes of hospitalizations and has the highest readmission rates within 30 days of a previous admission. Consistent evidence reveals improving nursing knowledge reduces complications, improves self-management support, lowers readmission rates in this particular patient population.

The DNP project was developed as a staff education intervention and focused on 30 nurses working on a telemetry unit in an acute care hospital. The project question was whether an educational intervention would increase general nursing knowledge caring for patients with CHF by a minimum of 20%. This project included evidence-based content on CHF pathophysiology, medication management, lifestyle modifications, symptom monitoring, patient education and red flags to notify their cardiologist. A pretest and posttest design was used and normalized gain calculated. The overall knowledge gain of 49% exceeded the 20% knowledge objective. Individually, all but three participants achieved this objective.

This project can help promote consistency in patient care, improving nurse knowledge, and improving patient outcomes. Continued integration of standardized CHF education within nursing orientation and annual competencies could sustain knowledge gains, improve patient outcomes and serve as a model for advancing nursing excellence and health equity across care settings.

Background

CHF exacerbations as well as the burden of frequent readmissions on the patient and already short, staffed hospital was the impetus for this project. The organization stives to deliver high quality care but a review of the nursing care for patients with CHF identified a need for nurse education. The project was designed to address this practice gap by implementing an evidence-based staff education program to improve nurses' knowledge in providing standardized care for patients with CHF. The project question focused on whether an educational intervention would increase general nursing knowledge of caring for patients with CHF by a minimum of 20%.

CHF is a chronic progressive, debilitating disease that affects nearly 26 million people worldwide with a high prevalence among older adults (Son et al., 2020). Treatments have improved over the years; however, mortality has declined resulting in higher morbidity, mortality and frequent hospital readmission in the United States (Browder & Rosamond, 2024). Patients are especially vulnerable in the lower socioeconomic position; they experience higher rates of hospitalization and readmission compared to their high SEP counterparts. (Browder & Rosamond, 2023). Heart failure readmissions secondary to heart failure exacerbations are considered preventable. Research has shown one of the major causes of readmissions is nonadherence to established therapy for symptom control, ignoring sudden clinical changes that require intervention, medication noncompliance, or missed follow up appointments (Marques et al., 2022). Nurses are in a key position to help explain and teach these early warning signs and symptoms. Nurses can teach patients about their medications and the importance of red flags to monitor and report. However, research demonstrates consistent

gaps in nursing staffs' knowledge, and best practices in CHF education and management (Huesken et al., 2021). Nurse led evidence-based teaching has shown feasibility, acceptability and potential benefits for patients with CHF. Tailored self-care recommendations enabled patients to acquire self-care knowledge and skills boosting their confidence in self-care, fulfilling tsks, making patients capable of handling their condition, improvements in illness perception contributing to better self-care behaviors (Huang & Chair, 2025).

Nurses' knowledge of heart failure was variable, ranging from expert to poor leading to diverse patient outcomes. A recent study conducted using a cross-sectional survey with a total of 918 nurses surveyed identified that both specialist and general nurses displayed lower-level knowledge about dry weight, asymptomatic hypotension, and transient dizziness (Darciuc et al., 2024). In theory, nurses who routinely care for patients with heart failure have more exposure and experience categorizing the nurses as specialists. Specialist nurses not only demonstrated higher levels of knowledge, but their knowledge scores also showed less variability compared to general nurses (Wang et al., 2023). A recent systematic review demonstrated that a nurse led heart failure clinic resulted in a positive impact on patient outcomes and quality of life as well as medication efficacy (Lee et al., 2022). Nurse led heart failure clinics included teachings regarding medication titration, psychosocial support, symptom management and self-clinical assessments and findings to report to their cardiologist (Wu et al., 2024). This project addressed the organizational gap by implementing a targeted staff education program designed to improve nurses' knowledge in caring for patients with CHF.

Research results revealed the importance of a much-needed strategy to help improve nursing knowledge to improve patient outcomes. A recent study revealed implementation of an educational class for CHF improved patient outcomes, confidence and ability to self-manage heart failure as well as decreased visits (Stahlman et al., 2023). Evidence quality was moderate to high, supported by multiple peer reviewed studies and systematic reviews indicating that structured nurse education improved knowledge, communication, and patient self-management.

Staff Education Project Development

Strategies used to conduct this DNP project included a strengths, weakness opportunities and threats (SWOT) analysis, and organization readiness assessment tool. The SWOT analysis identified the major strength to be strong leadership support and commitment to quality improvement and patient centered care, providing approval and access to nursing staff for educational participation. The weakness identified was time constraints delivering education during working hours created scheduling challenges, limiting engagement for nurses with heavier assignments. The threat identified was other ongoing quality initiatives and time constraints reducing administrative focus or resources available for participation in the program. The opportunities identified was the success of the program, which literally provided an opportunity to replicate the educational session for other units and system wide nursing education programs. The project can be incorporated into mandatory sessions for all incoming telemetry nurses as a competency while on orientation.

Organizational readiness analysis identified that while the facility recognizes the importance of improving heart failure outcomes, there are gaps in structured staff

education and timely implementation of evidence-based strategies. Leadership expressed support for initiatives that aligned with the quality and safety goals, indicating willingness to allocate time and resources. Staff demonstrated interest in enhancing their knowledge in caring for CHF patients; however, variations in engagement and time constraints during shifts suggested that targeted communication, flexible education delivery, and leadership reinforcement and support are necessary to ensure sustained participation. Overall, the analysis suggested that the organization was moderately prepared for change with clear potential for successful adoption if guided by strong leadership support.

The participants for this staff education project were 30 nurses working on a telemetry unit that routinely cared for patients with CHF. The nurses were identified as key stakeholders due to their direct role in patient assessment, discharge teaching, and care. Participation was voluntary, and all nurses were invited through a mandatory nurse unit meeting e-mail communication by the nurse manager.

A PowerPoint presentation was developed to deliver educational information (see Appendix A). Development was guided by the scholarly inquiry of peer reviewed sources that discussed CHF pathophysiology, recognition of warning signs, medication compliance, diet and fluid management and critical compliance of follow up appointments. The educational presentation also included current evidence-based practice recommendations provided by the American Heart Association (AAHFN, 2024).

Nurses were given a printout of the PowerPoint presentation to follow along with during the verbal presentation to assist with visual learning. All learning materials were collected to avoid sharing of material due to the mixed times of educational sessions.

This maintained validity of data retrieved for nurses unable to participate in later educational presentations. A 21-item multiple choice pretest (see Appendix B) and posttest (see Appendix C) were used to assess participant knowledge. The posttest consisted of the same items as the pretest to validate achievement of knowledge on the same concepts and topics. To maintain anonymity and confidentiality, nurses identified their own six-digit number that was used on both the pretest and posttest to promote correlation of the results. A post presentation evaluation was developed to retrieve quantitative and qualitative data regarding quality of the educational intervention and suggestions for improvement (see Appendix D)

Pretests and posttest intervention assessments were conducted to evaluate if there was a knowledge gain which met the objective threshold for the educational intervention. Descriptive statistics and normalized gain were calculated for this project. The Hake (1998) normalized gain formula of the posttest score minus the pretest score divided by the highest possible score, which was 100 for this project, minus the pretest score multiplied times 100 was used for gain calculation

Results

The project included 30 nurses from a telemetry unit. The overall pretest mean score for all nurses was 62.78% (min = 9.52%; max = 90.48%) and the overall posttest mean was an 81.11% (min =80.95%; max100% =). The analyzed gain result was g = .49 (49%) which indicated a moderate to high level of learning effectiveness. Knowledge gains for individuals varied. The gains were interpreted on a scale of low, (0.00-0.19), moderate (0.20-0.49) and high (0.50-1.00). Among the 30 participants, two (6.7%) demonstrated low gain, six (20%) showed moderate gain and 22 (73.3%) revealed a high

gain. In addition, 28 participants (93.3%) attained a minimum 20% increase in knowledge, meeting the benchmark for improvement (see Appendix E). The overall knowledge gain of 49% exceeded the 20% knowledge objective. All but three participants achieved this objective on an individual basis.

Following completion of the educational intervention, all participants completed a post-education Likert-Scale survey evaluating their perceived knowledge, confidence and satisfaction with the CHF education session. On a 5-point Likert scale (1=strongly disagree to 5 strongly agree) all respondents rated 5 across all items, indicating unanimous agreement that the educational session increased their knowledge and confidence in providing care and patient education for patients with CHF. These results supported the effectiveness of the intervention in meeting the learning objectives and demonstrated a positive reception of the educational approach. Participants found CHF symptom recognition, early intervention strategies such as daily weighing and medication management strategies most valuable and identified additional time for discussion, and avoiding the educational presentation during shifts as areas that could be improved. Other comments included mostly positive feedback describing clear presentation of the educational content, and relevance for daily practice.

A notable strength of this project was the strong participation rate. The project's educational content was grounded in current evidence-based guidelines for CHF management, enhancing its clinical relevance and alignment with practice standards. Furthermore, the interactive format of the educational session supported active participation and knowledge retention among participants which likely contributed to the high proportion 93.3% of nurses achieving at least a 20% knowledge gain.

The project was conducted on a telemetry unit which limits generalizability to other departments. Schedule challenges imposed a major burden on nursing staff to complete the educational intervention. Conducting this education session during nurses' active shifts demanded additional time and effort placing burden on nurse workflow or lunch break. The educational session was given across multiple small groups rather than the intended one large content session which may have introduced variability in delivery and engagement. Another limitation was that the posttest was administered shortly after the educational intervention, therefore the results may reflect short term knowledge retention, rather than sustained learning over time. Finally, self-selection bias may have occurred, as participants were chosen on a telemetry unit, where participants may have been more motivated due to the content being directly related to their specialty. This may have enticed participants to engage attentively during the educational session.

The project holds importance beyond this local site as the challenges related to CHF management, patient education, and preventable readmissions are pervasive across healthcare systems nationally. Heart failure remains one of the leading causes of hospitalization and 30-day readmissions, placing a significant burden on hospitals and contributing to disparities in care quality across diverse settings (Dizdarevic-Hudic et al., 2025). By demonstrating that a structured nurse education intervention can improve knowledge and care delivery, this project provides a replicable framework that can be adopted by other institutions seeking to improve outcomes for Heart failure patients.

Conclusions

The implementation of this staff education project led to a noticeable improvement in nursing staff knowledge along with confidence in caring for patients with

CHF. Post education evaluations revealed the participants increased understanding of evidence-based strategies for discharge teaching, medication compliance, management and symptom monitoring. The posttest survey demonstrated a self-report of improved confidence in applying this knowledge in clinical practice. These results suggested the educational intervention increased the staff's knowledge and practical readiness. Overall, the project's outcome supported the effectiveness of a targeted structured staff education module with the intent to strengthen clinical competence and improve patient care delivery. While analyzing the results, there were notable trends regarding nurse's baseline knowledge. Pretest questions that were commonly wrong demonstrated a knowledge gap in caring for patients with CHF. For instance, many nurses answered assessing the patient's EKG to determine if the patient had CHF instead of an echocardiogram. Another trend noted was participant response to monitor the patient's renal function instead of potassium while the patient is taking maintenance mediation for CHF. These answers demonstrated good general baseline knowledge for universal monitoring of patients in an acute care setting, but they did not address management in a setting tailored to specific patients with CHF. After the nurses were given structured education tailored for CHF management, there was an increase in CHF patient care knowledge for this project.

Thirty telemetry nurses participated in this project. The average normalized gain revealed a moderate to high level of knowledge gain, displaying significant knowledge growth. All participants self-reported an increase in confidence and providing care for patients with CHF in their post presentation evaluation. These results indicated that the educational intervention was effective in achieving its objective to improve nursing

knowledge. Further recommendations include implementing a structured educational intervention tailored to CHF care maintenance for all telemetry nurses within the organization. This intervention could be utilized as a mandatory competency in orientation for all onboarding telemetry nurses.

CHF is a complex progressive disease with high mortality and readmission rates, more than 100,000 new cases identified each year, globally projected to increase by 25% by 2030 (Ali et al., 2025). Implementing this educational session during onboarding new nurse hire process could help ensure telemetry nurses receive standardized evidence-based education on CHF patient management. The implications for nursing practice extend beyond this organization, supporting equitable patient education, fostering equity, and inclusion in care delivery. The project will promote positive social change through improved health literacy and access to high-quality person-centered care for all patient populations. Ultimately, this project could improve consistency in patient care, improving nurse knowledge ultimately improving patient outcomes.

References

Ali, S., McMillan, K., & Kelly, F. (2025). Improving palliative care knowledge of nurses caring for heart failure patients. *BMC Palliative Care, 24*, 43. https://doi.org/10.1186/s12904-025-01669-7

American Association of Heart Failure Nurses. (2024). *Best practices in heart failure patient and staff education*. https://www.aahfn.org/

Browder, S. E., & Rosamond, W. D. (2023). Preventing heart failure readmission in patients with low socioeconomic position. *Current Cardiology Reports, 25*(11), 1535–1542. https://doi.org/10.1007/s11886-023-01960-0

Darciuc, R., Boiciuo, I., Eraslan, H., Tașnic, M., Cozmo, C., Ivanov, D., Voitov, S., Diker, E., & Batrînac, A. (2024). Heart failure management – A multidisciplinary approach: Literature review and single center experience. *The European Society of Medicine, 12*(1). https://doi.org/10.18103/mra.v12i11.5918

Dellaflore, F., Ghizzardi, G., Vellone, E., Magon, A., Conte, G., Baroni, I., De Angeli, G., Vagnone, L., Russo, S., Stievano, A., Arrigoni, C., & Caruso, R. (2023). A single-center randomized controlled trial to test the efficacy of nurse-led motivational interviewing for enhancing self-care in adults with heart failure. *Healthcare, 11*(5), 773. https://doi.org/10.3390/healthcare11050773

Dizdarevic-Hudic, L., Halilovic, E., Brkic, S., Loncar, D., Jahic, N. A., Hudic, I., Ibralic, A. M., & Suljic, Z. (2025). The impact of patient education on rehospitalization rate and quality of life in heart failure patients. *International Journal of the Cardiovascular Academy*, *11*(1), 6–14. https://doi.org/10.4274/ijca.2025.70298

Hake, R. R. (1998). Interactive-engagement versus traditional methods: A six-thousand-student survey of mechanics test data for introductory physics courses. *American. Journal of Physics*, *66*(1), 64–74. https://doi.org/10.1119/1.18809

Huang, Z., & Chair, S. Y. (2025). Development and pilot testing of a nurse-led common-sense model of self-regulation-based heart failure self-care program. *BMC Nursing*, *24*, 85. https://doi.org/10.1186/s12912-025-02722-9

Huesken, A., Hoffmann, R., & Ayed, S. (2021). Persistent effect of nurse-led education on self-care behavior and disease knowledge in heart failure patients. *International Journal of Nursing Sciences*, *8*(2), 161–167.

Lee, S. J., & Kim, B. H. (2022). Development of core educational content for heart failure patients in transition from hospital to home care: A Delphi study. *International Journal of Environmental Research and Public Health*, *19*(1), 6550. https://doi.org/10.3390/ijerph19116550

Marques, C. R. D. G., de Menezes, A. F., Ferrari, Y. A. C., Oliveira, A. S., Tavares, A. C. M., Barreto, A. S., Vieira, R. D. C. A., da Fonseca, C. D., & Santana-Santos, E. (2022). Educational nursing intervention in reducing hospital readmission and the mortality of patients with heart failure: A systematic review and meta-analysis. *Journal of Cardiovascular Development and Disease*, *9*(12), 420. https://doi.org/10.3390/jcdd9120420

Son, Y. J., Choi, J., & Lee, H. J. (2020). Effectiveness of nurse-led heart failure self-care education on health outcomes of heart failure patients: A systematic review and meta-analysis. *International Journal of Environmental Research and Public Health, 17*(18), 6559. https://doi.org/10.3390/ijerph17186559

Stahlman, S., Huizar-Garcia, S., Lipscomb, J., Frei, C., & Oliver, A. (2023). Implementation of a heart failure educational intervention for patients with recent admissions for acute decompensated heart failure. *Frontiers in Cardiovascular Medicine*, *10*, 1133988. https://doi.org/10.3389/fcvm.2023.1133988

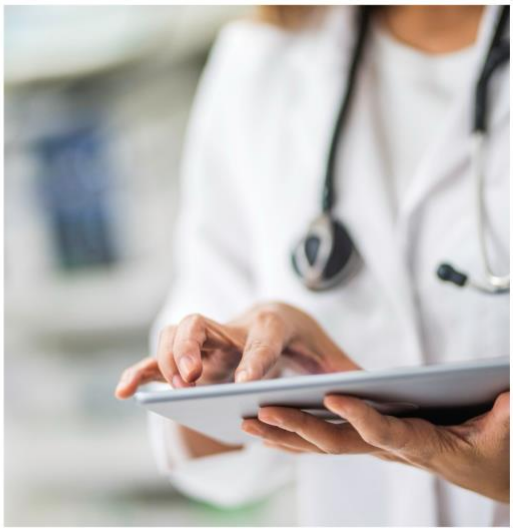
Wang, Z., Walsh, S., Tocchi, C., Zhang, Y., Chyun, D., & Lee, K. (2023). Nurses' knowledge of heart failure assessment and management: A cross-sectional survey. *Heart & Lung*, *58*, 10–18. https://doi.org/10.1016/j.hrtlng.2022.11.008

Appendix A: Educational PowerPoint

COMPREHENSIVE CARE FOR PATIENTS WITH CONGESTIVE HEART FAILURE

Multidisciplinary approaches to manage CHF effectively

Jessica Nicole Smith



OBJECTIVES

Upon completion of the presentation, participants will be able to:

- Differentiate between left-sided, and right-sided heart failure based on clinical presentation and hemodynamic changes.
- Evaluate patient therapeutic response through monitoring parameters (weight changes, vital signs, lab values).
- Implement patient teaching sessions to include diet and nutrition, and physical activities.
- Recognize early warning signs of decompensation in a patient with congestive heart failure.

AGENDA ITEMS

- Understanding Congestive Heart Failure (CHF)
- Medical Management of CHF
- Lifestyle Modifications and Patient Education
- Red flags

DEFINITION AND TYPES OF CHF

Understanding CHF

Congestive Heart Failure occurs when the heart cannot pump enough blood to meet physiological demands, leading to various health issues.

The gold standard for diagnosing CHF consist of a test called an echocardiogram that measures the ejection fraction of the heart

The ejection fraction that is consistent with heart failure with reduced ejection fraction is less than 40%

Systolic Heart Failure (left sided heart failure)

In systolic heart failure, the heart's ability to contract and pump blood is impaired, leading to reduced cardiac output.

Diastolic Heart Failure (right sided heart failure)

Diastolic heart failure is characterized by the heart's inability to relax properly, resulting in insufficient filling of the heart chambers.

UNDERSTANDING CONGESTIVE HEART FAILURE (CHF)

CAUSES AND RISK FACTORS

Heart Conditions

One of the most common cause of CHF is coronary artery disease and previous heart attacks, which weaken the heart muscle.

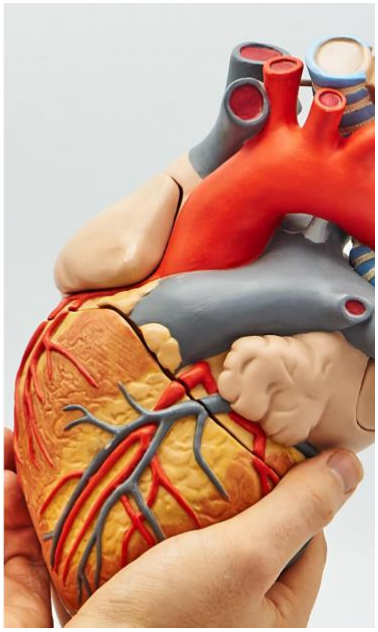
High Blood Pressure

Hypertension is a significant risk factor for CHF as it increases the workload on the heart, ultimately leading to damage.

Lifestyle Risk Factors

Diabetes, obesity, and smoking history are major risk factors contributing to the development of CHF, highlighting the importance of lifestyle choices.

-It is important for patients to consider stopping smoking in the setting of CHF.



PHARMACOLOGIC TREATMENTS

Diuretics

Diuretics are essential for reducing fluid retention in patients with CHF, helping to alleviate symptoms and improve quality of life.

-Diuretics help remove excess fluid that can cause fluid build up in the lungs and tissues, diuretics remove the excess fluid by increased urine output, it is important to monitor intake and output while patients are taking diuretics.

ACE Inhibitors

ACE inhibitors help lower blood pressure and reduce strain on the heart in patients with CHF, contributing to overall heart health.

Beta-Blockers

Beta-blockers improve heart function and are crucial in managing heart failure symptoms while enhancing overall cardiac performance.

Medication Management

Regular assessment and adjustments of medications are necessary to effectively manage CHF and meet individual patient needs.

NON-PHARMACOLOGIC INTERVENTIONS

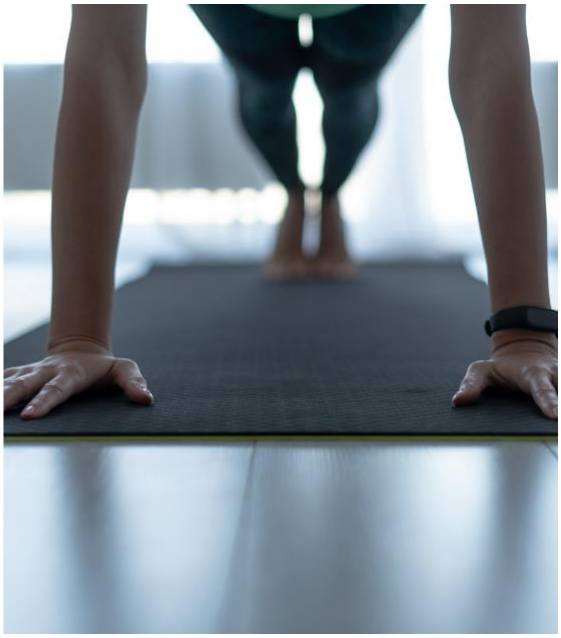
Lifestyle Changes

Implementing lifestyle changes such as sodium restriction to less than 2 grams daily, weight management, refraining from smoking, and increase physical activity can significantly improve health outcomes.

Monitoring daily weights with the same scale, every morning, after urinating is imperative.

Keeping a daily weight log for physician follow up appointments.

Notifying physician if gain more than 2 lbs in 24 hours or more than 5lbs in one week.



MONITORING AND FOLLOW - UP CARE

Importance of Monitoring

Maintaining follow up appts with cardiologist is prudent in CHF management to ensure timely adjustments to treatment plans and medications. Monitoring for signs and symptoms that could be adverse reactions to new medications, or possible ineffectiveness of current regimen.

Assessing Treatment Effectiveness

Follow-up care allows healthcare providers to investigate the therapeutic regimen or effectiveness of current medication regimen.

Identifying New Symptoms

Maintaining follow -up appointments help in identifying new symptoms or complications that can happen with heart failure medications.

LIFESTYLE MODIFICATIONS AND PATIENT EDUCATION

DIET AND NUTRITION

Heart-Healthy Diet

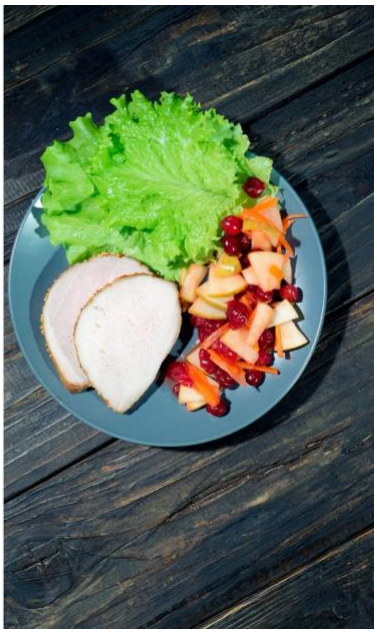
A heart-healthy diet is essential for patients with CHF, focusing on fresh, nutritious foods. Refraining from a diet high in saturated fat, carbohydrates and sodium. Top foods to avoid in a heart healthy diet are red meat, bacon, processed meats such as hot dogs, fried foods such as French fries, sugary drinks and cereals, potatoes chips, full fat dairy products, and baked goods such as pastries.

Reducing Sodium Intake

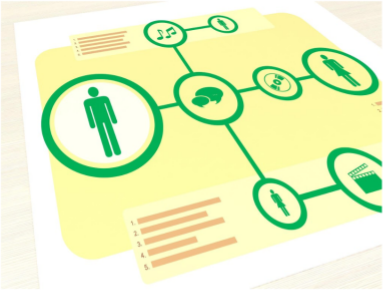
Limiting sodium intake is vital for heart health and helps manage the symptoms of CHF. Ensuring patients maintain a diet with less than 2 grams of sodium. Which is approximately one teaspoon a day. Excess sodium causes water retention, therefore limiting the sodium can help decrease the incidence of fluid overload. There are many salt substitutes that are approved in a heart healthy diet such as Mrs Dash and Lawrys salt free.

Fruits and Vegetables

Incorporating plenty of fruits and vegetables supports overall health and aids in fluid management.



RED FLAGS



Red flag #1

If a patient gains more than 2lbs in 24 hours or gains more than 5 lbs in one week, this must be reported to your physician immediately

Red flag #2

If a patient starts to suffer shortness of breath even while resting or laying flat, this must be reported to physician immediately.

PHYSICAL ACTIVITY RECOMMENDATIONS

Starting Exercise Regimens

Gaining medical clearance for physical activities to help overall health.

Light to Moderate Activity

Focusing on light to moderate physical activities promotes cardiovascular health without causing undue stress on the heart. Such activities can usually include walking, swimming, and gentle cycling, with the approval of your healthcare provider.

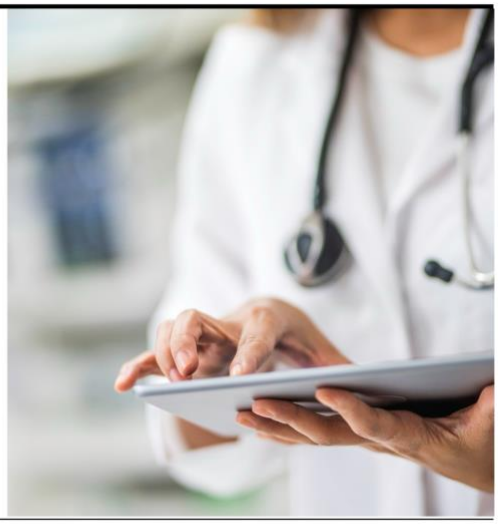
Avoiding Overexertion

It is important for CHF patients to avoid overexertion during physical activity. Regular monitoring of symptoms can help in adjusting the intensity of exercise.

CONCLUSION

Understanding Congestive Heart Failure	Effective Medical Management	Lifestyle Modifications	Red Flags
A clear understanding of Congestive Heart Failure is essential for effective patient care and management	Implementing effective medical management strategies is critical to controlling symptoms and improving outcomes for patients.	Encouraging lifestyle modifications, such as diet and exercise, can significantly impact patients' health and quality of life.	Include a weight gain of 2 lbs. or more in 24 hours and increased SOB or dyspnea while resting or laying flat must be notified immediately to provider

THANKYOU.



REFERENCE:

- American Heart Association. (n.d.) *Heart failure tools and resources.* Retrieved July 13, 2025 from https://www.heart.org/en/health-topics/heart-failure/heart-failure-tools-resources

Appendix B: Pretest

Development of an Evidence-Based Educational Intervention to Advance Nurse Competency in Comprehensive Care of Patients with Congestive Heart Failure

Date: _____

Purpose: This questionnaire aims to assess your current knowledge level.

Confidentiality: Your responses will be kept confidential and anonymous.

Time: The questionnaire should take approximately 10 minutes to complete.

Identification Number: Please place a six-digit identification number on this test that you will remember as you will need to use it again following the presentation. Do not use consecutive numbers. Use a unique string of numbers (e.g., 357834). Only place the number on the test – not your name or any other personal information.

Six Digit Identification Number: _____

After completing the pretest, return it to the designated collection point.

Directions: Please select the correct response to each of the following items by circling your selection. There is only one correct response for each item.

1. Which of the following is the most common cause of Congestive Heart Failure?
    a. Coronary Artery Disease
    b. Chronic Kidney Disease
    c. COPD
    d. Diabetes
2. What is the hallmark symptom of left-sided Heart failure?
    a. Peripheral Edema
    b. Jugular distention
    c. Pulmonary congestion/ dyspnea
    d. Cyanotic lips
3. Which medication is prescribed to reduce fluid overload in Congestive Heart failure patients?
    a. Ace inhibitors
    b. Beta Blockers
    c. Diuretics
    d. Anticoagulants

4. Which dietary instruction is most appropriate for a patient with CHF?
    a. Increase Fluid intake
    b. Limit sodium to less than 2 grams a day
    c. Increase protein intake
    d. avoid carbohydrates
5. A patient with CHF gains 3lbs overnight. Which is the most appropriate action?
    a. Notify the patient this is a normal finding.
    b. Call the provider
    c. Encourage ambulation
    d. Encourage or Offer a meal high in sodium
6. Which ejection fraction is consistent with heart failure with reduced ejection fraction
    a. A. > 55%
    b. 45-55%
    c. 40-49%
    d. <40%
7. Why are beta blockers prescribed in CHF patients?
    a. To increase heart rate
    b. To prevent arrythmias
    c. To reduce myocardial oxygen demand
    d. Both b and c
8. Which nursing intervention is appropriate for a patient with worsening CHF symptoms?
    a. Encourage increased fluid intake
    b. Elevate lower extremities
    c. Encourage ambulation with no rest
    d. Increase dietary sodium
9. Patient teaching for CHF self-management includes:
    a. Recognizing early signs of weight gain
    b. Avoiding daily weight measurements
    c. Increase fluid and sodium intake
    d. Avoiding physical activity
10. When should individuals with CHF weigh themselves?
    a. Every night before bed
    b. After each meal
    c. Every morning as soon as wake up after voiding.
    d. One hour after morning medication.

11. What is a major side effect observed with right sided heart failure?
    a. peripheral edema
    b. JVD
    c. Ascities
    d. All of the above
12. What medication is commonly prescribed to remove excess fluid in CHF patients?
    a. Metoprolol
    b. Furosemide
    c. Lisinopril
    d. atorvastatin
13. Which vital sign change may suggest worsening CHF?
    a. Decreased respiratory rate
    b. Tachycardia and shortness of breath
    c. Hypotension
    d. Increased agitation
14. What lab value must be monitored closely while taking maintenance medications for CHF?
    a. Hemoglobin
    b. A1c
    c. Potassium
    d. creatinine
    e. BNP
15. Which of the following contributes to CHF readmissions?
    a. Medication adherence
    b. Low sodium diet
    c. Lack of follow up care and education
    d. Controlled blood pressure
16. What is an early symptom of Congestive heart failure?
    a. Fever
    b. Fatigue
    c. Rash
    d. Jaundice
17. What diagnostic exam is most often used to evaluate cardiac function in CHF?
    a. Chest X Ray
    b. EKG
    c. Echocardiogram
    d. CT scan

e. MRI

18. What is the most important factor to include in patient teaching for discharge.
    a. Increase salt intake
    b. Decrease fluid intake to 2L a day
    c. Stop all medications once feeling better
    d. Avoid weighing self
19. What does a BNP assess?
    a. Blood glucose control
    b. Renal function
    c. Cardiac stress and fluid overload
    d. Electrolyte imbalance
    e. Oxygen saturation
20. Which lifestyle modification is recommended for CHF patients?
    a. Smoking cessation
    b. Excessive alcohol intake
    c. High Sodium Intake
    d. Avoid exercise completely
21. What is the goal of CHF treatment?
    a. Cure the disease
    b. Minimize the symptoms and prevent hospital readmission
    c. Decrease urine output
    d. Increase the cardiac workload
    e. Lose weight

Appendix C: Posttest

Development of an Evidence-Based Educational Intervention to Advance Nurse Competency in Comprehensive Care of Patients with Congestive Heart Failure

Date: _____

Purpose: This questionnaire aims to assess your current knowledge level.

Confidentiality: Your responses will be kept confidential and anonymous.

Time: The questionnaire should take approximately 10 minutes to complete.

Identification Number: Use your six-digit identification number created for the pre-test as your identification– not your name or any other personal information.

Six Digit Identification Number: _____

After completing the pretest, return it to the designated collection point.

Directions: Please select the correct response to each of the following items by circling your selection. There is only one correct response for each item.

1. Which of the following is the most common cause of Congestive Heart Failure?
    a. Coronary Artery Disease
    b. Chronic Kidney Disease
    c. COPD
    d. Diabetes
2. What is the hallmark symptom of left-sided Heart failure?
    a. Peripheral Edema
    b. Jugular distention
    c. Pulmonary congestion/ dyspnea
    d. Cyanotic lips
3. Which medication is prescribed to reduce fluid overload in Congestive Heart failure patients?
    a. Ace inhibitors
    b. Beta Blockers
    c. Diuretics
    d. Anticoagulants

4. Which dietary instruction is most appropriate for a patient with CHF?
    a. Increase Fluid intake
    b. Limit sodium to less than 2 grams a day
    c. Increase protein intake
    d. Avoid carbohydrates
5. A patient with CHF gains 3lbs overnight. Which is the most appropriate action?
    a. Notify the patient this is a normal finding.
    b. Call the provider
    c. Encourage ambulation
    d. Encourage or Offer a meal high in sodium
6. Which ejection fraction is consistent with heart failure with reduced ejection fraction
    a. A. > 55%
    b. 45-55%
    c. 40-49%
    d. <40%
7. Why are beta blockers prescribed in CHF patients?
    a. To increase heart rate
    b. To prevent arrythmias
    c. To reduce myocardial oxygen demand
    d. Both b and c
8. Which nursing intervention is appropriate for a patient with worsening CHF symptoms?
    a. Encourage increased fluid intake
    b. Elevate lower extremities
    c. Encourage ambulation with no rest
    d. Increase dietary sodium
9. Patient teaching for CHF self-management includes:
    a. Recognizing early signs of weight gain
    b. Avoiding daily weight measurements
    c. Increase fluid and sodium intake
    d. Avoiding physical activity
10. When should individuals with CHF weigh themselves?
    a. Every night before bed
    b. After each meal
    c. Every morning as soon as wake up after voiding.
    d. One hour after morning medication.

11. What is a major side effect observed with right sided heart failure?
    a. peripheral edema
    b. JVD
    c. Ascities
    d. All of the above
12. What medication is commonly prescribed to remove excess fluid in CHF patients?
    a. Metoprolol
    b. Furosemide
    c. Lisinopril
    d. atorvastatin
13. Which vital sign change may suggest worsening CHF?
    a. Decreased respiratory rate
    b. Tachycardia and shortness of breath
    c. Hypotension
    d. Increased agitation
14. What lab value must be monitored closely while taking maintenance medications for CHF?
    a. Hemoglobin
    b. A1c
    c. Potassium
    d. creatinine
    e. BNP
15. Which of the following contributes to CHF readmissions?
    a. Medication adherence
    b. Low sodium diet
    c. Lack of follow up care and education
    d. Controlled blood pressure
16. What is an early symptom of Congestive heart failure?
    a. Fever
    b. Fatigue
    c. Rash
    d. Jaundice

17. What diagnostic exam is most often used to evaluate cardiac function in CHF?
    a. Chest X Ray
    b. EKG
    c. Echocardiogram
    d. CT scan
    e. MRI
18. What is the most important factor to include in patient teaching for discharge.
    a. Increase salt intake
    b. Decrease fluid intake to 2L a day
    c. Stop all medications once feeling better
    d. Avoid weighing self
19. What does a BNP assess?
    a. Blood glucose control
    b. Renal function
    c. Cardiac stress and fluid overload
    d. Electrolyte imbalance
    e. Oxygen saturation
20. Which lifestyle modification is recommended for CHF patients?
    a. Smoking cessation
    b. Excessive alcohol intake
    c. High Sodium Intake
    d. Avoid exercise completely
21. What is the goal of CHF treatment?
    a. Cure the disease
    b. Minimize the symptoms and prevent hospital readmission
    c. Decrease urine output
    d. Increase the cardiac workload
    e. Lose weight

Appendix D: Post Educational Survey

Development of an Evidence-Based Educational Intervention to Advance Nurse Competency in Comprehensive Care of Patients with Congestive Heart Failure

Please complete the following questionnaire to help assess the training effectiveness.
Place an X in the box of the number that corresponds to your selection.

	5 Strongly Agree	4 Agree	3 Neutral	2 Disagree	1 Strongly Disagree
1. The educational session increased my understanding of CHF pathophysiology.	**5**	**4**	**3**	**2**	**1**
2. I have an increased understanding of care for patients with CHF.	**5**	**4**	**3**	**2**	**1**
3. The content was evidence based and up to date.	**5**	**4**	**3**	**2**	**1**
4. The session was clearly presented and easy to understand.	**5**	**4**	**3**	**2**	**1**
5. The session addressed common challenges in managing CHF patients.	**5**	**4**	**3**	**2**	**1**
6. The session achieved the stated objectives.	**5**	**4**	**3**	**2**	**1**
7. I feel more confident in caring for patients with CHF after attending this educational session.	**5**	**4**	**3**	**2**	**1**
8. The learning style was effective.	**5**	**4**	**3**	**2**	**1**
9. I will apply what I have learned into my nursing practice.	**5**	**4**	**3**	**2**	**1**
10. I would recommend this educational session to be presented as a mandatory training module for all incoming telemetry nurses on the unit.	**5**	**4**	**3**	**2**	**1**

11. What did you find most valuable about this session?

_____

12. What areas do you feel need improvement?

_____

13. Do you have any other comments or suggestions?

Thank you for participating in this staff education session on Congestive Heart Failure.

Appendix E: Pretest and Posttest Percentages and Normalized Gains

Test	Pretest percentage	Posttest percentage	Normalized gain	> 20% increase?
1	85.71%	95.24%	0.67	yes
2	85.71%	90.48%	0.33	yes
3	28.57%	80.95%	0.733	yes
4	9.52%	85.71%	0.84	yes
5	57.14%	90.48%	0.78	yes
6	9.52%	90.48%	0.90	yes
7	61.90%	95.24%	0.88	yes
8	90.48%	95.24%	0.50	yes
9	28.57%	95.24%	0.933	yes
10	85.71%	95.24%	0.67	yes
11	76.19%	95.24%	0.80	yes
12	90.48%	95.24%	0.50	yes
13	14.29 %	95.24%	0.95	yes
14	19.05%	95.24%	0.94	yes
15	38.10%	85.71%	0.77	yes
16	28.57%	90.48%	0.87	yes
17	28.57%	95.24%	0.93	yes
18	66.67%	90.48%	0.71	yes
19	14.29 %	90.48%	0.89	yes
20	76.19%	85.71%	0.40	yes
21	71.43%	85.71%	0.50	yes
22	80.95%	80.95%	0.00	no
23	66.67%	80.95%	0.43	yes
24	85.71%	90.48%	0.33	yes
25	90.48%	100%	1.00	no
26	80.95%	85.71%	0.25	yes
27	90.48%	95.24%	0.50	yes
28	52.38%	100%	1.0	yes
29	47.62%	71.43%	0.45	yes
30	90.48%	90.48%	0.00	no