Improving Readmissions for Heart Failure Patients Utilizing a Standardized Discharge Protocol

Josee Gill, RN, MSN

DNP Project Team: Denise Zabriskie DNP, RN and Samantha Peckham DNP, APRN

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Brief Overview

- Heart Failure (HF) is an acute disorder which occurs when the heart has difficulty pumping enough blood and oxygen to the heart and other organs (CDC, 2019).
- Heart failure is the cause of more than 20% of all readmissions in acute care hospitals, and more than 50% of HF patients will be readmitted within six-months (O'Connor, 2017).
- The cost of 30-day all-cause readmission is associated to $41.3 billion in hospital costs and affected approximately 3.3 million adults (Chava et al., 2019).
- It is estimated that by 2030 there will be approximately eight million people diagnosed with HF in the US (Sevilla-Cazes et al., 2018).
- Poor discharge processes can cause higher readmissions rates and unfortunate patient outcomes. When nurses utilize a standardized discharge process, patients are 30 percent less likely to be readmitted within 30 days of discharged compare to a patient who did not receive a standardized discharge process (Messerli & Deutsch, 2020).

Brief Overview (Cont.)

- Project aimed to create a HF discharge protocol (HFDP) and evaluate the 30-day readmission rates after implementation.
- This project was implemented on a Medical/Surgical/Telemetry unit in an acute care setting.
- The project design was a quality improvement project of all patients admitted to this unit with a primary and/or a secondary diagnosis of HF.
- The Donabedian Theory provided theoretical foundation for the project.
- The DNP project proved to show a strong positive correlation between HFDP and a decrease in 30-day HF readmissions.
- Practice pearls:
  - Live education to all nurses on readmissions and the discharge tool was beneficial
  - Protocol gave nurses a process and a checklist on how to educate and when to start the discharge process
  - Nurses embraced this tool, it gave them structure

DNP Problem

- Prevalence of Heart Failure (HF) in the United States (US) represents more than 6.5 million people contributing to one in eight deaths in 2017 (CDC, 2019).
- More than one million hospitalizations occur every year due to HF (Ryan et al., 2019).
- Penalties from Hospital Readmission Reduction Program (HRRP) for hospitals who have a high rate of readmissions with six specific conditions are costly (CMS, 2020).
- Hospital readmissions are often avoidable. Variances in transitions of care from hospital to home often exist placing patients at risk of readmissions, which may result in poor patient outcomes (Peter et al., 2015).
- The RED toolkit from AHRQ (2013) is a nationally recognized evidence-based practice tool focused on delivering a patient centered hospital discharge plan, which can reduce all cause 30-day readmissions (Mitchell et al., 2016).

DNP Problem (Cont.)

- Implementation of a nurse-led standardized discharge protocol can improve coordination of care, reduce readmissions, and improve patient outcomes (Patel & Dickerson, 2015).
- Baseline data showed the practice site to be at 18.65% for HF readmissions with a CMS goal of 15.30%
- Practice site had no standardized discharge process
- Nurses were educating and preparing the patient for discharge when a discharge order was written
- Discharge education needs to start when the patient is admitted, which includes getting to know the patient, his/her support system and building trust with the patient and family (Robeznieks, 2017).
- According to Messerli & Deutsch (2020) interventions that can improve discharge process are:
  - Identifying patients at risk of readmission
  - Educating patients about their disease process, medications and signs and symptoms to watch for
  - Improving interdisciplinary communication
  - Implementation of a standardized discharge protocol

Significance to Nursing

- American Association of College of Nursing [AACN] (2006)
  - Essential I: Scientific underpinning of practice describes that in order to determine the nature and significance of health and health care delivery one must utilized science-based theories and evidence-based practices to enhance, ameliorate health and health care delivery phenomena and evaluate these new practices.
  - Essential VII: Clinical Prevention of Population Health for Improving the Nations' Health states the importance of implementing evidence-based clinical practices and evaluate interventions to improve patient education and engage patients in their care.
- This HFDP was modeled after the RED toolkit from AHRQ (2013), which proved to be reliable to reduce 30-day HF readmissions on this unit.
- This HFDP tool provided the framework for the nurses to engage patients in education topics such as HF disease process, self-care techniques, the medication regime, and the importance for follow up appointments.
- This tool has demonstrated a reduction in 30-day HF readmissions

Problem/ Purpose Statement
Project Question

Problem Statement

- Heart Failure is the cause of more than 20% of all readmissions in acute care hospitals, and more than 50% of HF patients will be readmitted within six-months (O'Connor, 2017). The project site had no structured process on when to start patient education and no standardized process for discharge. Literature reveals that implementation of a standardized discharge protocol could reduce readmissions (Robeznieks, 2017).

Purpose Statement

- The purpose of this project is to show that the reduction on Heart Failure 30-day readmissions can be decreased by educating nurses and utilizing a standardized discharge protocol to include patient education, medications, diet and importance of follow-up appointments.

Project Question

- Will nurses implementing a standardized discharge protocol on a Medical/Surgical/Telemetry unit improve the HF readmission rates compared to current practice within a four-week period?

Project Objectives

1. Create and implement a nurse-led standardized HF discharge protocol.

2. Conduct an in-service education for nurses and case managers employed on the medical-surgical telemetry unit to train on the nurse-led standardized discharge protocol.

3. Measure education learned with the aid of a pre and posttest.

4. Perform a chart audit on the nurse-led standardized discharge protocol to verify participation compliance of 90 percent or greater.

5. Compare pre- and post-HF readmission rates for level of significance after completing the four-week DNP project.

Literature Review

- Completed review using keywords: heart failure, 30-day readmission, discharge process and medical/surgical/telemetry units.
- The review of study methods included Cochrane Library, Cumulative Index to Nursing and Allied Health Literature (CINAHL) and ProQuest Nursing and Allied Health Sources databases.
- Inclusion criteria were articles from the past five years written in English, full text peer review journals, Boolean phrase, with articles consisting of randomized control trials, systematic reviews, meta-analyses, national and clinical practice guidelines with the Agency of Healthcare Research and Quality
- The HF resulted in 194, 087 articles, drilled down with main themes of
  - Heart Failure
  - 30-day Heart Failure Readmission
  - Discharge Process
  - Medical Surgical Telemetry Units
- For the purpose of this project, 34 articles were reviewed in relation to the PICOT question.

Main Themes

- **Heart Failure:**
  - CDC (2019) describes that heart failure continues to increase annually with a current rate of 6.5 million Americans.
  - CDC (2019) further explains that one in eight people diagnosed with HF will die and more than one million hospitalizations are due to a diagnosis of HF
- **30-day Heart Failure readmission**
  - HF hospitalizations have the highest 30-day all cause readmission rate with the greatest number of readmissions of 134,500 patients and the largest estimated costs of $1.7 billion dollars (Rosa et al. , 2019).
  - Patients who are very elderly, with elevated risks of renal failure, living alone, or having inadequate social support present higher risks for readmissions (Murtaugh et al., 2017).
  - Over the past ten years, hospitals have implemented interventions to reduce HF readmissions; however, HF diagnosis is still the highest readmission diagnosis for Medicare patients (Wang et al., 2016).
  - Hospitals need to review their discharge process and interventions (Murtaugh et al., 2017 & Rosa et al., 2019).

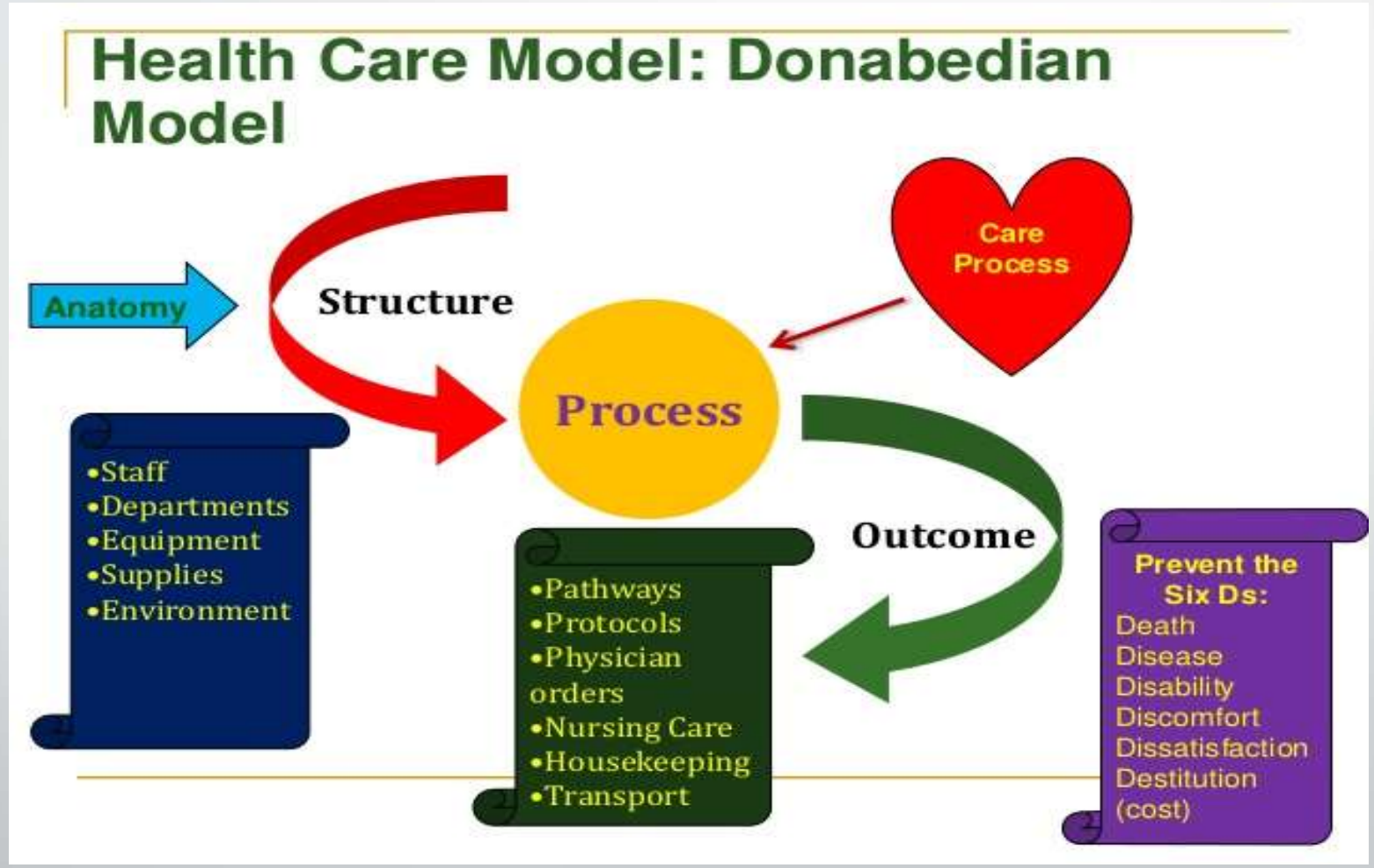
Main Themes (Cont.)

- **Discharge process**:
  - Many studies such as Peter et al. (2015); Kang et al. (2018); and Wang et al. (2016) describes strategies to address 30-day HF readmissions by improving transition of care and specific interventions that include: patient/family education in self-management, discharge planning, structured follow-up discharge appointment, and coordination of care with the primary care provider.
  - The national guidelines in relation to transition of care interventions by AHRQ RED toolkit (2013), consists of a set of 12 actions that hospitals can implement for transition at discharge
  - The systematic review showed the importance of a standardized discharge process with education, teach-back method and assessing patient's preparedness and participation in the discharge process which would be beneficial in this project (AHRQ,2013).

Main Themes (Cont.)

- **Medical Surgical Telemetry Units**:
  - Nurses need to understand the comprehension level among patients may be lower due to advanced age and lower education level, in addition to the patient being sick at the time education interventions are completed.
  - Multiple studies recommended implementation of targeted teaching interventions in relation to disease process, medications, signs and symptoms to watch for (Peter et al., 2015).
  - Utilizing teach-back methods, discharge checklist, follow up appointment and discharge call-back can reduce readmissions (Sommer et al., 2018; Balaban et al., 2018;).
  - Murtaugh et al. (2017) describes that there needs to be better coordination in care with increased communication between hospital and community: home health agency, nursing home, and or primary care provider to reduce fragmentation of care across the continuum, discharge planning needs to start early; preferably on the day of admission and include the patient family whenever possible, these measures can reduce readmissions and improve patient care.

Theoretical Model



Structure/Process/Outcome

- The Donabedian model highlights the importance of assessing how quality is to be defined with more thorough information and linkage around three major tenants(Donabedian, 1997):
  - Structure describes the context in which care happens,
  - Process states the relationships of the care between patient and providers
  - Outcomes relates to the results of the care the patient received
- **To Illustrate this framework:**
- Structure: The DNP project will be hosted on a medical surgical telemetry unit in an acute care hospital and will involve staff nurses and case managers.
- Process: Implementation of a standardized discharge protocol, educating nurses on this specific unit about the tool, collecting appropriate data, and employing statistical testing to determine outcomes.
- Outcome: The project lead will analyze the results of the data collected using appropriate statistical testing to determine if the DNP project intervention proved to be a statistically significant improvement in 30-day HF readmissions.
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Project Design

- Project site is a suburban 170 beds for-profit acute care hospital located in southeastern Nevada.
- DNP project was implemented on a medical/surgical/telemetry unit of 32 beds at this practice site,
- Population of interest pertains to 50 registered nurses (RN), one registered nurse case manager (RNCM).
- Experience of the nursing staff ranges from new graduate to approximately five years of experience.
- Practice raised interest in the implementation of a HF standardized protocol as a result of the increase in readmissions.
- Indirect population of interest in this project pertains to all patients admitted with a primary and or secondary diagnosis of Heart Failure
- Stakeholders are the hospital administration, unit manager, director, facilities educator, Chief Nursing Officer (CNO) and the Chief Executive Officer (CEO) because without their support the DNP project will not be implemented
- Creating a nurse-led standardized discharge protocol and educating RN's and RNCM with structured training to improve their competence in regards to HF disease and discharges.

Project

- Created a Nurse-Led HF discharge protocol utilizing the 12 items from Project RED toolkit. HFDP was approved by AHRQ
- Requested approval of project through UHS and HH IRB process and it was deemed no IRB was needed since it is a quality improvement project
- Developed an in-service for all nursing staff and case manager of this unit with a pre and post- test to assess knowledge learned with Content Validity Index (CVI)
- Chart audit tool compliance was completed on every HF diagnosis

Implementation

- Education was started on March 1st 2021, in groups of 10 to 12 staff members with five sessions. 45 RN's out of 49 RN's attended and 1 CM RN attended for a compliance rate of 92%.
- Heart Failure Discharge Protocol (HFDP) was implemented on all patients admitted to this Medical/Surgical/Telemetry unit admitted with a diagnosis of HF or history of HF discharged home routine or Home with Home Health agency
- A chart audit tool was created by the project lead to identify patients admitted to the medical/surgical/telemetry unit with a diagnosis/history of HF and assess the nurse compliance with the protocol
- The project lead conducted data collection of the education, completion of the form and review of total readmissions after 30 days of discharged.
- Statistical Package for Social Science (SPSS) software was used to perform statistical operations and data analysis for this quality improvement project.
- First patient discharged with HFDP was on March 5th 2021
- A total of 17 HFDP were completed for all patients admitted to a Medical/Surgical/Telemetry unit during the time frame of March 5th to March 31st.

Findings

- A paired-sample t-test was utilized to compare the means of two different sample, a pre-test and a post-test, completed before and after a training. This test evaluated the impact of the training of nurses' in HF readmission and the use of the HFDP.
- Statistically significant increase in knowledge from pre-test to post-test. The mean of the pre-test scores was 6.24 and a standard deviation of 1.353 to a post-test mean of 8.61 to standard deviation of .829 with a p value of less than .001(two-tailed).
- The mean increase in training scores was 2.370 with a 95% confidence interval ranging from -2.809 to -1.930. The eta squared statistic (.067) indicated a moderate effect size.

Paired Samples Statistics

		Mean	N	Std. Deviation	Std. Error Mean
Pair 1	pre test	6.24	46	1.353	.199
	posttest	8.61	46	.829	.122

Paired Samples Correlations

		N	Correlation	Sig.
Pair 1	pre test & posttest	46	.145	.337

Findings (Cont.)

- A simple binary logistic result was performed to investigate the completion of the HFDP form.
- The model contained one independent variable of HFDP form and a dychotomous dependent variable of two groups of “yes” and “no”.
- The model showed one HFDP form was incomplete for a total of 94.1% compliance with the HFDP form.

Classification Table[a,b]

			Predicted		
			Compliance		Percentage
	Observed		0	1	Correct
Step 0	Compliance	0	0	1	.0
		1	0	16	100.0
	Overall Percentage				94.1

a. Constant is included in the model.

b. The cut value is .500

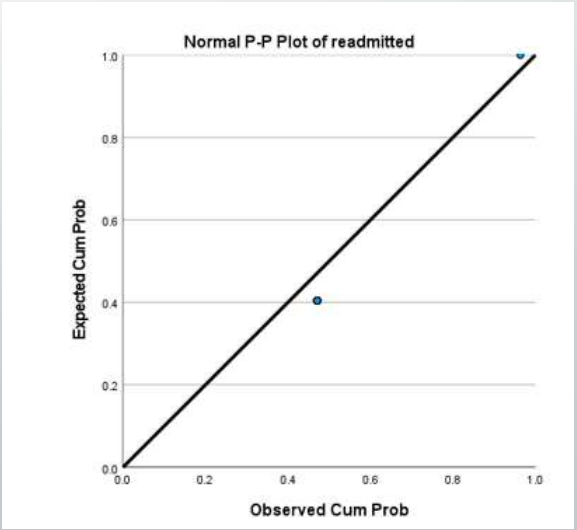
Findings (Cont.)

- The relationship between HF readmissions and the use of the HFDP was investigated using a Pearson product-moment correlation coefficient.
- A total of 17 HF patients were admitted to the medical/surgical/telemetry unit and discharged with the HFDP.
- Seventeen patients have met the post discharge criteria of 30-days and one patient has been readmitted after 26 days of discharged home.
- The data shows a strong positive correlation between the two variables, r =.1.00, n =17,
- P is less than .001 with a strong linear positive correlation between reduction in HF readmissions and the use of the HFDP.

Correlations

		HF protocol	readmitted
HF protocol	Pearson Correlation	1	1.000**
	Sig. (2-tailed)		.000
	N	17	17
readmitted	Pearson Correlation	1.000**	1
	Sig. (2-tailed)	.000	
	N	17	17

**. Correlation is significant at the 0.01 level (2-tailed).



Evaluation

- Heart Failure 30- day readmissions are complex and healthcare facilities are struggling with meeting the CMS goals in relation to 30-day readmissions.
- Gap in nursing practice identified in this DNP project was the lack of a structured process for nursing staff to utilize when they educate patients in their disease process, medications and engaging patients in self-care
- A total of 17 HFDP were completed for all patients admitted to this Medical/Surgical/Telemetry unit during this four week period
- One patient out of 17 was readmitted within 30 days of discharge
- Implications of these findings suggested that HF readmissions can be reduced by educating nurses in utilizing the HFDP tool.
- Nurses embraced this tool which assisted them in coordinating their care with the team and improved patient education in their disease, their medications, diet and importance of follow-up appointments.
- Increased communication occurred between case managers and nursing staff regarding patients' needs and services.
- Support of the project from stakeholders was essential to convey the importance of the information that was imparted to the participants. The stakeholders' support was responsible for the success of this project.

Limitations

- Low number of HF patients admitted to this specific unit during the time frame of the project.
  - A small number of patients may have limited the results of this project.
  - Data limited to number of patients admitted and discharged with a HF diagnosis.
- Project design with data recruitment methods.
  - Waiting for 30-days after a patient was discharged to capture any HF 30-day readmissions delayed data extraction.
  - The collection methods Pearson product-moment correlation coefficient test was not possible to complete at that time due to a violation of the assumptions of the test.
  - Readmissions data needed to be pulled at three different times so the correct and final data could be calculated.
- Decreased involvement of the night shift staff in patient education and completion of the protocol.
  - Night shift nurses were trained in the protocol, they did not all have the same level of involvement as the day shift staff in completing the form and educating patients.
  - Solution would consist of the project lead spending more time on the night shift to identify barriers to the protocol adherence and to reinforce the patient education process established by the protocol through demonstration

Project Sustainability

- This DNP project improved discharge education given to patients with structured interventions to improve the discharge process by identifying the patients at risk of readmissions, educating patients about their disease process, medications, signs and symptoms to watch for and improving interdisciplinary communication by implementing a standardized HF discharge protocol.
- Practice site has requested for the implementation of this HFDP ~~to be implemented~~ on all inpatient units and for other discharge protocols for diagnosis' of chronic diseases such as Chronic Obstructive Pulmonary Disease (COPD), pneumonia, stroke, total joint replacement and cardiac patients whom have high 30-day readmission rates.
- A request was made to the practice site that each unit who will be utilizing the discharge protocol will receive a one-hour education prior to the start of the project.
- Corporate office process improvement department has requested the possibility to upload the protocol into the EMR system which, would ease the use of documentation for the nursing staff and would assist in sustainability.

Conclusion

- Gap in nursing practice identified in this DNP project was the lack of a structured process for nursing staff to utilize when they educate patients in their disease process, medications and engaging patients in self-care.
- Nurses appreciated and embraced this tool,
- Improved communication with Case Management to assist them with identified issues with patient discharge
- Support of stakeholders is necessary and played a role in the importance of staff education prior to implementation of this project.
- HFDP proved to have a decrease in HF 30-day readmissions and the Pearson's correlation showed a strong positive correlation between HFDP used and decreased in HF readmissions.
- HFDP can be replicated to other disease process, other units and/or other hospitals.
- Ultimately, improving patient's health by educating and guiding individuals and groups through the transitions of care can improve patient outcomes.

Ideas for future dissemination

- Formal presentation to the DNP faculty and colleagues.
- Project lead will submit project to the Doctors of Nursing Practice repository website, which keeps an archive of curated documents.
- Poster-board presentation request will be submitted to the National Association of Healthcare Quality (NAHQ) Next summit, which will be held in September 2021as an online format.
- Data will be collected upon implementation of the project on other units and once enough data has been collected and readmissions continue to decrease by utilizing the discharge protocol a peer review journal manuscript will be written and submitted to the IRB at the practice site and at AHRQ for dissemination.

References

- Agency for Healthcare Research and Quality (2013). Re-Engineered Discharge (RED) Toolkit. Tool 1: Overview https://www.ahrq.gov/sites/default/files/publications/files/redtoolkit.pdf
- American Association of College of Nursing. (2006). *The essentials of doctoral education for advanced nursing practice*. Retrieved from https://www.aacnnursing.org/Portals/42/Publications/DNPEssentials.pdf
- Balaban, R.B., Zhang, F., Vialle-Valentin, C.E., Galbraith, A.A., Burns, M., E., Larochelle, M.R. & Ross-Degna, D. (2017). Impact of a patient navigator program on hospital-based and outpatient utilization over 180 days in a safety-net health system. *Journal of General Internal Medicine*, 32 (9). Pp. 981-989. doi: 10.1007/s11606-017-4074-2
- Center for Disease Control and Prevention (2019). Heart Disease, Heart Failure. https://www.cdc.gov/heartdisease/heart_failure.htm
- Center for Medicaid and Medicaid Services (2020). Hospital Readmissions Reduction Program. https://www.cms.gov/Medicare/Medicare-Fee-for-Service-Payment/AcuteInpatientPPS/Readmissions-Reduction-Program

References (Cont.)

- Chava, R., Karbi, N., Ketlogestwe, K. & Ayala. T. (2019). Multidisciplinary rounds in prevention of 30-day readmissions and decreasing length of stay in heart failure patients. A community hospital based retrospective study. *Journal of Medicine* (Baltimore), 98(*27*). Pp. 1-4. https://doi:org10.1097/MD.0000000000016233
- Donabedian, A. (1997). Special article: the quality of care: how can it be assessed? *Archives of Pathology and Laboratory Medicine*, 121 (*11*). Pp. 1145-1150. https://www.proquest.com/docview/211957437/7505D7E43AAC4B04PQ/1?accountid=28843
- Kang, E., Gillespie, B.M., Tobiano, G. & Chaboyer, W. (2018). Discharge education delivered to general surgical patients in their management of recovery post discharge: A systematic mixed studies review. *International Journal of Nursing Studies*, 87. Pp. 1-13. Retrieved from https://reader.elsevier.com/reader/sd/pii/S0020748918301585?token=56982CBF81120F9B5FF0E9CF3604DB04E3CA86F7210BEA78E1D7FCD0F1D1B7458B1C8D50E2190F2CF2D9CFDDEC5EADDD

References (Cont.)

- Messerli, A.W. & Deutsch, C. (2020). Implementation of institutional discharge protocols and transition of care following acute coronary syndrome. *Journal of Cardiovascular Revascularization Medicine.* Pp. 1-9. https://doi.org/10.1016/j.carrev.2020.02.013
- Mitchell, E., Martin, J., Holmes, S., van Deusen Lukas, C., Cancino, R., Paasche-Orlow, M, Brach, C.& Jack, B. (2016). How hospitals reengineer their discharge processes to reduce readmissions. *Journal of Healthcare Quality*, 38 (*2*). Pp. 116-126. DOI: 10.1097/JHQ.0000000000000005.
- Murtaugh, C.M., Deb, P., Zhu, C., Peng, T.R., Barron, Y., Shah, S., Moore, S.M., Bowles, K.H., Kalman, J., Feldman, P.H. & Siu, A.L. (2017). Reducing readmissions among heart failure patients discharged to home health care: effectiveness of early and intensive nursing services and early physician follow-up. *Health Services Research Journal*, 52 (*4*). Pp. 1445-1472. DOI: 10.1111/1475-6773.12537
- O'Connor, C.M. (2017). High heart failure readmission rates. Is it the health system fault? *Journal of American College of Cardiology*, 5 (*5*). Retrieved from: https://heartfailure.onlinejacc.org/content/5/5/393
- Patel, P.H. & Dickerson, K.W. (2018). Impact of the implementation of project re-engineered discharge for HF patients at a Veterans healthcare system. Hospital Pharmacy, 53 (4). Pp. 266-271. DOI: 10.1177/0018578717749925.

References (Cont.)

- Patel, P.H. & Dickerson, K.W. (2018). Impact of the implementation of project re-engineered discharge for HF patients at a Veterans healthcare system. Hospital Pharmacy, 53 (4). Pp. 266-271. DOI: 10.1177/0018578717749925
- Peter, D. Robinson, P., Jordan, M., Lawrence, S., Casey, K. & Salas- Lopez, D. (2015). Reducing readmissions using teach back. Enhancing patient and family education. *Journal of Nursing Administration*, 45 (*1*). Pp. 35-42. Retrieved from Wolters Kluwer Health, Lippincott Williams & Wilkins.
- Robeznieks, A. (2017). Successful discharge planning starts at admission. *Hospitals & Health Networks*. Pp. 39-43. https://web.a.ebscohost.com/ehost/pdfviewer/pdfviewer?vid=21&sid=780aac06-ebb0-4b86-9f4e-66d623693b9c%40sdc-v-sessmgr01
- Rosa, G.M., Scagliola, R., Ghione, P., Valbusa, A., Brunelli, C., Carbone, F., Montecucco, F. & Monacelli. F. (2019). Predictors of cardiovascular outcome and rehospitalization in elderly patients with heart failure. *European Journal of Clinical Investigation*, 49. Pp. 1-12. DOI: 10.1111/eci.13044.

References (Cont.)

- Ryan, C.J., Bierle, R. & Vuckovic, K.M. (2019). The three R's for preventing heart failure readmission: review, reassess and reeducate. *Journal of Critical Care Nurse*, 39 (*2*), Pp. 85-93. Retrieved from American Association of Critical Care Nurses
- Sevilla-Cazes, J., Ahmad, F.S., Bowles, K.H., Jaskowial, A., Gallagher, T., Goldberg, L.R., Kangovi, S., Alexander, M., Riegel, B., Barg, F.K. & Kimmel, S.E. (2018). Heart failure home management challenges and reasons for readmission: a qualitative study to understand the patient's perspective. *Journal of General Internal Medicine*, 33 (*10*). Pp. 1700-1707. DOI: 10.1007/s11606-018-4542-3
- Sommer, A.E., Golden, B.P., Peterson, J., Knoten, C.A., O'Hara, L. & O'Leary, K. (2018). Hospitalized patients' knowledge of care: a systematic review. *Journal of General Internal Medicine,* 33 (*12*). Pp. 2210-2229. DOI: 10.1007/s11606-018-4658-5
- Wang, H., Johnson, C., Robinson, R.D., Netjek, V.A., Schrader, C.D., Leuck, J., Umejiegol, J., Trop, A. Delaney, K.A. & Zenarosa, N.R. (2016). Roles of disease severity and post discharge outpatient visits as predictors of hospital readmissions. *Bio Med Central Health Services Research*, 16 (*564*). Pp. 1-10. DOI: 10.1186/s12913-016-1814-7

Questions