

Effects of an Education Presentation for Hospital Providers on Heart Failure and Core Measures

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Abstract

Purpose: To evaluate the effectiveness of providing education on current heart failure (HF) guidelines and core measures documentation (CMD) for healthcare providers to improve implementation of HF guidelines.

Background and Significance: HF affects over 5.1 million people in the United States, costing \$31 billion a year; \$1.7 billion spent on Medicare readmissions within 30 days of discharge. Guidelines and care coordination prevent expenses related to hospital readmissions and improve quality of life for adults with HF.

Methods: Healthcare providers (HCPs) at a metropolitan hospital participated in an education session reviewing HF treatment and CMD. Thirty participants completed the single five-point Likert scale pre/post surveys evaluating their opinions of knowledge and behaviors toward implementation of guidelines and CMD. Patient outcome data was abstracted measuring pre/post education compliance for ejection fraction, ACE/ARB, beta-blocker, HF education, follow-up appointments, aldosterone antagonist, anticoagulation, hydralazine nitrate, and CMD 30-45 day's pre/post education. Analyses included descriptive statistics of participants and pre/post surveys using a paired t-test. Percentage of compliance for quality measures was completed on patients from September through December.

Results: Providers post intervention showed improved knowledge and behaviors toward implementation of guidelines and CMD, including reconciliation of medications to statistical significance. However, the demographics showed the majority of participants were non-cardiac specialties. Improved compliance for outcome data of quality measures was insignificant over time. The non-cardiac demographic may have contributed to this result.

Conclusion: The surveys did not correlate with the patient outcome data. Recommendations would include targeting cardiac focused HCPs for future education sessions.

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Chapter 1 Introduction

Heart failure (HF) is a common condition that develops and worsens over time. As HF progresses, it can become more complicated and difficult for patients and providers to manage resulting in frequent hospital admissions, which can result in high medical costs. Methods to improve quality of care, reduce readmission rates, and reduce costs for HF patients has been linked to implementing certain changes within the plan of care for patients. Implementing certain changes within the plan of care could improve quality of patient care, reduce readmission rates, and reduce costs for HF patients.

Problem Statement

HF affects approximately 5.1 million people in the United States (US) and is one of the largest financial drains on the healthcare system (Centers for Disease Control and Prevention [CDC], 2013). In patients 65 and older, HF is responsible for 80% of the hospital admissions, which makes it one of the top diagnoses for hospitalizations (McClintock, Mose, & Smith, 2014). Hospital readmission within 30-days of discharge is one of the major areas where healthcare money is spent. It is estimated that nearly 25% of patients discharged from the hospital will be readmitted within 30-days (Feltner et al., 2014). Perceivably, part of the readmission problem is due to poor compliance with implementing EBGs for HF related to resistance to change (RTC) by HCPs. This inquiry has lead to the clinically relevant PICOT question, in healthcare providers (P), how does an interprofessional (IP) collaborative approach to implementing a HF clinical pathway (CP) (I), compared to imposed OC (C), affect RCT (O)?

Background and Significance

Heart Failure is a highly prevalent condition associated with increased mortality, morbidity, and healthcare costs (Heidenreich et al., 2013). Patterns of inconsistencies and deviations in the use of evidenced based practice (EBP) for HF are responsible for increased hospitalizations and fatal outcomes (Fonarow et al., 2011). The estimated national cost for HF was approximately \$31 billion in 2012 and is projected to cost \$70 billion a year by 2030 (Heidenreich et al., 2013). In 2011, according to the Healthcare Cost and Utilization Project (HCUP) the 30-day readmission rate for Medicare patients was approximately 134,500 for a total cost of over \$1.7 billion. Hence, evidence based strategies must be employed to safely and effectively transition patients from the hospital back into the community to reduce the risk of hospital readmissions.

Current practice at St. Joseph's Hospital (SJH) implies poor compliance following the 2014 ACCF/AHA *Get with the Guidelines* for HF. There is approximately an 80% total compliance rate with implementing the eight quality measures for HF throughout the hospital and only 26% compliance completing the CMD for HF (Flynn, 2015). In effort to improve the quality of care for HF patients and reduce the risk for hospital readmission within 30-days, SJH implemented a HF clinical pathway (CP) based on the 2014 ACCF/AHA *Get with the Guidelines* for HF, which can be found within the Cerner electronic medical record (EMR) system under CMD.

Several individual and combined methods to reduce hospital readmission rates and improve the quality of care for patients have been reported. Fleming and Kocioal (2014) found through a systematic review that using evidence based guidelines (EBGs) such as those established by the American Heart Association (AHA) in conjunction with a transitional care

system appeared to be the most effective interventions. The use of EBGs for development of a CP is a method used to standardize care, which promotes less variation along with transparency for the plan of care and can be utilized in a multidisciplinary model (Vanhaecht, De Witte, Panella, & Sermeus, 2009). Although a CP can be beneficial in reducing costs related to variations in care, it is crucial to have the support of the providers for successful implementation (Feinberg et al., 2012).

Search Strategy

Evidence pertaining to the proposed PICOT question was obtained by performing an exhaustive search of the following databases: PubMed, CINAHL, Academic Search Premier, and The Cochrane Library. Medical subject heading (MeSH) terms included: HF, healthcare, healthcare providers, IP, multidisciplinary, collaboration, CP, critical pathway, RTC, imposed change, and implementation. Searches were conducted breaking down the areas of the PICOT question and combining the relative MeSH terms to gather the best data including use of the Boolean connectors “AND” and “OR” within the search items. A five-year publication limitation was applied to each of the databases and terms and limits were then combined pulling the best search terms together to fulfill the entire PICOT question. In addition to the databases used, an ancestry search was performed from some of the key articles that had a strong correlation with the PICOT question.

PubMed

A PubMed search using the MeSH terms of HF “AND” CP “AND” healthcare providers “AND” implementation was completed yielded 15 studies. Limits were placed on the search, which included data within the last five years. This yielded two studies, one of which was relevant and retained. Changing the MeSH term from healthcare providers to healthcare in

addition to adding CP “OR” critical pathway yielded 11 studies. Finally, the Mesh terms healthcare “OR” healthcare providers “AND” IP “OR” multidisciplinary “AND” collaboration “AND” RTC produced 12 studies. One study was appropriate and kept.

CINAHL

The search strategy for CINAHL using the same limits with the MeSH terms healthcare “OR” healthcare provider “AND” IP “OR” multidisciplinary “AND” collaboration yielded 326 studies. However, with the addition of HF it produced only two studies. One of those studies was applicable and held. The MeSH term RTC required a narrower search using healthcare “OR” healthcare provider “AND” RTC yielding 18 studies. One of the 18 studies was pertinent and obtained.

Academic Search Premier

An exhaustive search was conducted in the Academic Search Premier database using the keywords and limitations of articles written from 2009 to 2015. Combining the MeSH terms HF “AND” CP “OR” critical pathway “AND” implementation “AND” healthcare yielded 11 studies. Only one study was fitting and saved. Eliminating HF from that search and including “AND” healthcare provider “AND” collaboration yielded six studies. Searching with the MeSH terms healthcare “OR” healthcare provider “AND” IP “OR” multidisciplinary “AND” collaboration produced 979 studies, which was significantly reduced with the addition of the MeSH term “AND” shared decision making to yield 14 studies. Two studies were relevant and kept for use. To evaluate the area of RTC, healthcare “OR” healthcare provider “AND” RTC produced 114 studies but when the additional MeSH term of collaboration was introduced, no studies were yielded. However, RTC “AND” collaboration yielded 22 studies, which had two relevant

studies. Finally, RTC “AND” imposed change produced 17 studies with one pertinent study obtained.

The Cochrane Library

The Cochrane library was searched using the keywords with limits applied for methods studies between the date ranges of 2009 to 2015. However, there were limited relative studies retrieved. The final yields for the Cochrane library include 11 studies on HF, five for CP, and four IP studies with the removal of the methods studies limit. Additional keywords did not yield any relative studies. However, none of the Cochrane studies that were yielded were deemed appropriate for use.

Based on the results from the search strategy 10 key articles were retained for critical evaluation. Of these 10 articles, five were cross sectional studies (CSS), three case studies (CS), one descriptive study (DS), and one was a systematic review and meta-analysis RCT, which were placed in an evaluation table (Appendix A).

Evidence Synthesis

There were 10 articles retained for review related to this project (Appendix A & B). Of these 10 articles, five were cross sectional studies (CSS), three case studies (CS), one descriptive study (DS), and one was a systematic review and meta-analysis random control trial (RCT) (Appendix B). Five of the 10 studies demonstrated level III evidence with only one study that was level I. Three of the remaining four studies were level four and the final study was a level six (Appendix B). The overall focus of the majority of the studies is related to OC, which was found in eight of studies, disease and non-health related (Appendix B). The strongest of those studies by Feltner et al. (2014), concluded that home-visiting programs and multidisciplinary HF clinics are supported with the highest evidence for reducing readmission rates, which warrants

significant evidence for the benefit of OC. Bias was apparent in all the US related publications, which was most commonly related to publication or financial benefit with the exception of Feinberg et al. (2012). The additional studies that were completed outside of the US were level three and four CS or CSS, which had little to no bias (Appendix B).

The study populations and interventions were diverse in age, race, sex, health status, and OC. The majority of the studies had significant heterogeneity of the demographics and interventions (Appendix B). Only Manning et al. (2013) and Feinberg et al. (2012) were mildly structured to a degree of homogeneity based on demographic for disease and specific interventions. However, it is difficult to declare the validity of either of those studies because of the lack of information on sample size and specifics regarding the studies used.

Collaboration was the strongest correlation to the desired outcomes in nine of the 10 studies, particularly when measuring RTC and patient or professional satisfaction (Appendix B). Only half of the studies measured RTC, but all five studies found a decrease in resistance with a collaborative team approach (Appendix B). In addition to collaboration, the use of a multidisciplinary or IP approach in the health care setting improved outcomes for patient or professional satisfaction and decreased RTC (Appendix B). There were limitations in measuring the effects of OC because the 10 studies varied grossly in the nature of the demographics, interventions, and outcomes. The majority of the measurements used were generalized surveys or questioners, which can result in opinion, bias, and be less reliable. Statistical measurements were generated using t-tests, Chi square test, syntagmatic analysis, realist synthesis, and descriptive analysis.

Purpose and Rational

The burdensome nature of HF continues to plague the healthcare system. In order to reduce the mortality and morbidity of HF patients as well as reduce costs related to hospital readmissions, it is imperative to make changes with patients care before they are discharged. Change needs to begin with implementation of all the appropriate EBGs for HF including completing documentation regarding treatment and education while the patient is still in the acute care setting.

To have a successful organizational change, all relative parties that will be involved with the transition process need to be aware of the purpose and benefit for the change and their role as key stakeholders through this collaborative interaction. Enhancing the provider's awareness through education and collaboration can decrease RTC with compliance for implementation and documentation. In addition, if compliance with EBGs improves it is conceivable there will be a reduction in the 30-day readmission rates and overall healthcare costs for HF patients, consequently improving the quality of care and life for the patient. Therefore, the purpose of this EBP project is to evaluate the effectiveness of providing an educational presentation for HCPs on current EBGs for HF as indicated by the AHA and completing the CMD for HF patients prior to discharge from the acute-care setting.

Chapter 2 Applied Clinical Project: Methods & Results

This chapter will discuss the EBP model that was used to guide the project and the Conceptual/Theoretical Model used to guide the intervention. In addition, the project methods describing the setting, intervention, data collected, and results will be reviewed.

EBP Model and Conceptual/Theoretical Model

EBP Model

The Model for Change to Evidence-Based Practice (MCEBP) by Rosswurm and Larrabee (1999) was chosen to guide a scholarly project (Appendix C). This model is based on theory and research, which is designed to direct healthcare professionals through an organized process for change based on EBP, application of research, standardized language, and the change theory (Rosswurm & Larrabee, 1999). The model has six components (a) assess the need for change in practice, (b) link problem interventions and outcomes, (c) synthesize best evidence, (d) design practice change, (e) implement and evaluate change in practice, and (f) integrate and maintain change in practice (Rosswurm & Larrabee, 1999) (Appendix C).

Conceptual/Theoretical Model

The conceptual framework of the transitional care model (TCM) is a comprehensive in-hospital and post-acute health care model utilizing a multidisciplinary team to support a smooth transition of care from an acute care setting to their home or other care setting while promoting positive patient outcomes and reducing health care costs (University of Pennsylvania [UP], n.d.). The TCM incorporates 10 essential elements involving specific components relative to the care of the patient with specific focus on collaborative and comprehensive holistic multidisciplinary care, continuity of care, along with communication and active engagement of patients, family, caregivers, and providers (UP, n.d.) (Appendix D). In addition, specific focus for successful use of the TCM for this project will include (a) collaboration implementing an EBP plan of care with the patient, family, caregivers, and HPCs, (b) education for the patient, family, and caregivers regarding medications, and (c) scheduling a follow-up appointment prior to discharge and within seven days of release from the hospital (Appendix D). The TCM promotes guidance for HCPs to

follow current HF EBGs and CMD during the transitioning discharge process of HF patients. Thus, reducing the complications post-discharge, thereby enhancing patient outcomes and reducing the 30-day readmission rates.

Methods

Ethics and Setting

The Arizona State University IRB approved this EBP scholarly project as an expedited review based on all of the data, documents, and records submitted (Appendix E). The setting for this EBP project is an in-patient environment at a Level 1 metropolitan hospital in Phoenix Arizona, which was approved by the hospital's Chief Physician Executive (Appendix F). The organizational culture at St. Joseph's Hospital and Medical Center is committed to excellence by fostering the healing ministry of Jesus, and providing compassionate, high-quality, affordable healthcare to all patients through collaborative practice (Dignity Health website, n.d.).

Participants

The participants consisted of physician level HCPs managing HF patients in the in-patient setting. The population for the demographics included attending physicians, residents, medical students, nurse practitioners (NPs) and physician assistants (PAs).

Intervention and Outcomes Measured

In September 2015 de-identified data was abstracted using a retrospective chart review on in-patients with a HF diagnosis. This was performed to establish HCP compliance with implementing eight HF quality measures as well as compliance numbers for completing the HF CMD prior to the educational intervention. The eight quality measure outcomes that were abstracted for assessing the pre/post intervention compliance included (a) ejection fraction, (b) ACE/ARB, (c) beta-blocker, (d) 60-minutes of HF education, (e) follow-up appointments within

seven days of discharge, (f) aldosterone antagonist, (g) anticoagulation, and (h) hydralazine nitrate (Appendix G). The reliability and validity of the eight quality measure outcomes were in accordance with the 2014 ACCF/AHA *Get with the Guidelines* for HF (AHA, 2014).

Staff from St. Joseph's Hospital created an education presentation in the form of a PowerPoint presentation on the *Get with the Guidelines for Heart Failure* and HF CMD, which was designed to be a brief overview of HF and how to use the CMD (AHA, 2014) (Appendix H). The presentation was delivered on two different occasions for the HCPs in a 60-minute educational discussion setting. The first education session was presented in a conference room at the Family Practice building on St. Joseph's Hospital campus October 16, 2015 and the second was delivered on November 17, 2015 in a conference room at St. Joseph's Hospital. The cardiac rehab nurse educators and the cardiology medical director conducted the presentations. A brief personal introduction, summary about this scholarly project, and instructions regarding participation was provided (Appendix I). This was followed by submission of a paper form demographic sheet attached to one pre and one post education survey for the HCPs. It was expressed that participation was completely voluntary and anonymous. The demographic information consisted of questions regarding gender, age, employee status at the affiliated hospital and length of employment, employee title and specialty, as well as years of practice (Appendix J). The pre and post education surveys measuring the HCPs outcomes consisted of seven questions and were designed to be identical. The surveys were created as a single five-point Likert scale evaluating the HCP's self reported opinions of knowledge, confidence, and behaviors toward implementation of HF guidelines and CMD (Appendix K). The surveys were determined to have face validity as reported by two clinical experts in the field who were not previously associated with this project.

The demographic forms and pre-education surveys were completed prior to the educational review, followed by the post-education surveys at the end of the presentation. The surveys were passed to the end of each table and collected upon completion of the meeting. De-identified data from retrospective chart reviews were continued in October and November to assess for changes with implementation of the guidelines and CMD from the first and second educational presentations. The final retrospective chart review was concluded December 31, 2015, which was approximately 30-45 days after the second education session.

Data Analysis

The data analysis and statistical tests were completed using IBM SPSS 22 and Excel. Descriptive and inferential statistics were used to describe the sample and the outcome variables. A paired t-test was used to analyze the score difference between the seven pre-post education survey questions among the HCPs. Standard frequency analysis was performed to describe and compare the demographics for the HCPs completing the surveys. The eight quality measure outcomes, which included ejection fraction, ACE/ARB, beta-blocker, HF education, follow-up appointments, aldosterone antagonist, anticoagulation, hydralazine nitrate, and CMD was evaluated from each retrospective chart review. They were further categorized by the month identified and imputed using Excel. The data was converted to percent values and measured for outcome compliance and totals (Appendix G). The critical value was set at $p < 0.05$ and a two tailed test was used to analyze the data.

Proposed Budget

The proposed budget for implementation of this project will result in very little out of pocket expenses to facilitate. The actual personal expense implementing this project consists of a small amount of money to pay for printer paper to be used for the provider demographic sheet,

surveys, and quality measures. The hospital staff has already designed the education presentation, which resulted in no additional costs. The presentation will take less than an hour and is to be conducted in a hospital conference room and may or may not include lunch or snacks provided by the hospital. There will be two sessions held approximately a month apart during normal business working hours. Having the meeting at the end of the day or lunchtime reduces the likelihood that providers are being pulled away from seeing patients, therefore costing them and the hospital time or money. The nurse educators are currently tracking the same pre/post quality measure outcomes data that was used for this project daily. Hence, there will be no additional cost for this process.

Results

Thirty HCPs (n=30) completed the surveys (Appendix J & Appendix L). Of these, 13 (43.3%) were male and 17 (56.7%) were female (Appendix L). The majority of group, 25 (83%) was 25 to 35 years of age, 3 (10%) were less than 25 years, and 2 were 36 to 45 years of age (Appendix L). Employment titles/positions included 0 (0%) attending physicians, 25 (83.3%) residents, and 5 (16.7%) medical students (Appendix L). Employment specialty varied with the highest group being Family Medicine 14 (46.7%), followed by Internal Medicine 9 (30%), 1 Hospitalist (3.3%), and other 6 (20%), which included the 5 medical students and 1 from neurology. Finally, there were 17 (56.7%) in practice for less than a year and 13 (43.3%) from 1 to 5 years (Appendix L).

The pre and post surveys signified the HCPs (n=30) knowledge about the guidelines, confidence to implement them, understanding the importance for completing the CMD, and comfort level for completing CMD (Appendix K). A paired-samples t test was calculated to compare the mean pre-test scores to the mean post-test scores. Statistically significant results

were seen in the overall knowledge level ($p < 0.001$), implementation of EBGs recommendations ($p < 0.001$), understanding importance of completing CMD ($p < 0.001$), how to access CMD in the EMR ($p < 0.001$), and how to reconcile medications in the EMR ($p = 0.005$) (Appendix M).

The eight quality measures and CMD compliance by the HCPs had the most unexpected results with significant decline in total compliance from 80% in September, 76% in October, 73% for November, and only 68% in December (Appendix N). The worst compliance rate was with HCPs implementing hydralazine nitrate at discharge, which had a 0% compliance rate in September, October, and December but a 20% compliance rate for November (Appendix N). Interestingly, the CMD compliance rates increased from 26% to 40% (Appendix N). These overall results were lower than published statistics (Vanhaecht et al., 2009). However, an inferential analysis was not performed on this data.

Discussion

This evidence based project evaluated if providing an educational presentation on the current EBGs for HF and CMD would impact compliance rates with implementation of the HF guidelines and completion of CMD in the EMR. The target populations for the educational intervention were HCPs of HF in-patients but it was not limited to specific specialty groups, provider level of practice, nor was it mandatory for attendance. Due to these non-specific requirements a few barriers were met with this scholarly project. Since the sessions were not mandatory, it was not possible to control attendance of key HCPs that would typically have the greatest amount of interaction with HF in-patients. In addition, because participation was voluntary and anonymous, it is not possible to decipher whom or what levels the other providers were that attended the sessions. For this project, the information and results are based on the 30 HCPs ($n=30$) that attended the sessions and elected to complete in the surveys. However, there

were approximately 30 HCPs that attended the first session with a return of 22 completed surveys and around 15 HCPs that attended the second session in which eight surveys were returned. It was also noted that there were no attending physicians that completed the surveys. Perhaps this could be considered another barrier because the residents and medical students follow by the example and leadership of the attending or higher level resident physician.

Preparation and execution of the presentation also encountered a couple barriers for both scheduled sessions. The first barrier was met when the dates and times required changing from the initial planning, which pushed the presentation session out by a couple months. Secondly, when the new date and time was sent out for the first education session to the people in charge of organizing it including the Cardiology Medical Director, the time was listed 1 hour later than the actual scheduled time. The Cardiology Medical Director arrived at the “sent” time, which delayed and rushed the presentation to stay on track within the time allowed. The second session also was delayed due to technical difficulties. The disorganization for both sessions may have caused some items to not be discussed in as much detail as was necessary and lack of focus from the audience.

On the other hand, several things assisted with facilitating the intervention. The presentation was put together well with excellent bullet points to focus on the main concerns and included nice visual aids for assisting how to use and access the CMD. The Cardiology Medical Director and nurse educators were very knowledgeable about the topic and process, which provided a nice flow when discussing the information and answering questions from the HCPs. In addition, there were several nice color handouts that were given to the HCPs including a reminder card that could be attached to their badge holder for them to take and use as a prompt, emphasizing specific important guidelines or actions.

Changes that would be advised for use in this setting or a different setting in the future would include mandatory attendance of one of the live sessions or creating an on-line education tutorial. Having a tutorial might be an easy addition for the hospital because they already have on-line education modules that are mandatory for HCPs to complete throughout the year.

Unfortunately, the results of this scholarly project did not correlate with the literature/evidence synthesis. Specifically, the design of this project was similar to Vanhaecht et al., (2009), which recommended using EBGs to develop a CP to standardize care and promote less variation within a multidisciplinary model. The EBGs from the AHA was used to design the CMD. Despite a notable 14% increase rate for completing CMD from September 2015 to December 2015, the actual compliance implementing the guidelines into practice significantly decreased from 80% to 68% total compliance from September 2015 to December 2015. These results could be related to some of the barriers met with the implementation process.

Limitations

This project had a number of limitations, which may have contributed to the inconsistent quality measure and CMD outcomes when compared to the pre/post survey and literature results. First, the education sessions were offered as an open invitation to all levels of providers from select specialty groups. Although there was a sign-in sheet for attendance, the sign-in sheet was not included for this project to assist with maintaining an unidentified structure. Moreover, the surveys were also completed anonymously. Consequently, this resulted in no definitive way to know if the HCPs that attended and responded to the surveys were the primary providers on admission or discharge for the HF patients whom the outcomes were measured on. In addition, the only providers that participated were residents or medical students from non-cardiac specialties.

In order to capture all of key HCPs, the sessions should be mandatory for the providers that are most frequently involved with admitting and discharging HF patients. Secondly, HCPs that admitted and discharged the HF patients were not identified. Identifying the HCPs associated with the care for each patient would provide transparency regarding patterns in compliance, which would allow appropriate education interventions. Fourth, the sample size for HCPs was fairly small with only 30 participants. Ideally, having a sample size greater than 100 would provide more strength and validity to the results (Kellar & Kelvin, 2013). Finally, the surveys used for the pre/post test were designed to obtain the HCPs opinion. The surveys were created using face validity for assessing measurement, which is a weaker form of measurement because it is subjective judgment.

Chapter 3 Organizational/Health Policy Impact & Sustainability

The final chapter will discuss the impact this evidence-based scholarly project had on the organization and the probability for sustainability of the intervention in the future.

Impact of the Project

The educational session was perceived well from the resident and student medical providers, although there were no attending physicians or cardiac specialty providers that participated. Although the paired-samples t test did not indicate statistical significance ($p < 0.182$) in the pre/post surveys by the HCPs ($n=30$) for the education session being helpful, it did imply there was some benefit (Appendix M). However, the HCPs that participated reported improved knowledge and understanding regarding the importance of HF guidelines as well as enhanced comprehension of how to document HF management in the EMR to statistical significance. Interestingly, despite the results from the areas of improvement, patient quality measures recorded during the period of the intervention trended toward worsening guideline

compliance with improved CMD. The decline in guideline compliance by the HCPs could potentially have impacted the health outcomes for the patients, which may have put them at risk for hospital readmission. While follow-up data on these patients is not available for this project, if failure to adhere to the EBGs did result in readmissions, the hospital may write the financial burden associated with this finding.

Cost/Benefit Analysis

The cost/benefit for implementation of this project had minimal out of pocket cost and would likely result in little financial costs to another individual or the facility if the project was replicated in a similar fashion (Appendix O). The personal expenses implementing this project consisted of a small amount of money to pay for printer paper. This covered making the demographic sheets and surveys for the providers along with the instruments used for the retrospective chart reviews. The education presentation in this case was already designed by the hospital staff but could be created at nearly no cost using PowerPoint. The presentation took less than an hour and was completed during regular business hours for all staff. Thus, it should not have generated additional overtime pay. The sessions were conducted in a hospital conference room, which also did not require additional expenses to be paid out. The first session was at the end of the workday and did not include any food. However, lunch was provided by the hospital for the second one. Although the exact cost for lunch is not known, it could be estimated to cost approximately \$350.00 for 30 people (Appendix O). It should be noted that offering “free lunch” did not increase attendance compared to the first session without food. In this particular case the nurse educators track the same pre/post quality measure outcomes data that was used for this project daily. Therefore, no additional expenses were added related to the nurse educators

recording the quality measures data. At the end of the month, one of the educators de-identified that data for that month and sent it for use in this project.

Impact of Current Policy

There is no specific policy at St. Joseph's hospital regarding HCPs practice. However, it is expected that they will follow the most current EBGs as appropriate to deliver the highest quality of care and excellence for patients. This project promotes current EBP, which is congruent with the expectations of the hospital. Thus, it is not expected that the results of this project will hinder future implementation of educating HCPs. In addition, the foundation of this project is in alignment with the expectations of the Affordable Care Act (ACA). Hospital readmission within 30 days of discharge is one of the major areas where money is spent. Medicaid reported 18,800 readmissions at a cost of \$273 million, and approximately 3,600 uninsured people were re-hospitalized costing about \$43 million (HCUP, 2011). In an effort to improve quality of care and reduce the costs of preventable medical expenses, incentives to reduce high hospital readmission rates have been set under the ACA (U.S. Department of Health & Human Services [HHS], 2010). Under the ACA incentives, hospitals with Medicare patients that have high readmission rates can lose up to 3% of their Medicare reimbursement (HHS, 2010). As a result, it is imperative for hospitals to work on reducing readmission rates to prevent loss in hospital Medicare reimbursement.

Personal Role as Project Leader and Innovator

As the project leader, it was imperative to follow and respect the current plan of execution for the education presentation because the key cardiac team members from the hospital already designed it. A collaborative effort was established particularly with the cardiac rehab nurses to assure the project would measure objectives of interest for the hospital. During this

process vigilant attention was placed on not breaching the Health Insurance Portability and Accountability Act (HIPPA) during the course of disseminating the outcomes measures. Moreover, it was also decided the identity of the providers that participated would remain anonymous for this project trial. The highlighted interest for the cardiac team was to see if the presentation would improve CMD. The theory being, if CMD improved the implementation of current HF guidelines would also improve.

Barriers were minimal once the plan of action for the project was outlined. However, there were two obstacles that occurred after the agreed plan for the project. First, coordinating dates and times that worked for all parties was tricky, but fortunately as project leader being flexible in this area was not a problem. Secondly, the key person that was providing the de-identified data for the project left the position prior to the completion of the project. After a short exchange with the cardiac rehab nurse requesting help with what was needed to complete the project, she was gracious enough to assist with providing the information. The role of leadership and innovation for the success of this project was surely a collaborative effort between all parties.

Sustainability

Moving forward this project is sustainable and has the opportunity to expand, which would make it more accessible to all providers. The cost effectiveness of the current project design makes it easy to continue or replicate. The presentation created by the staff was put together exceptionally well, while maintaining focus on the major concerns and including visual aids for assisting how to use and access the CMD. Since all the information on that PowerPoint is the most current information, it can be reused for future sessions. Since Cardiology Medical

Director and nurse educators were primary stakeholders and champions of change for this project, it can be expected they will be open to improving the intervention for future use.

Minor adjustment could be made to enhance the impact of the material presented to produce more profound outcomes from the providers. Ensuring the providers that are responsible for managing HF inpatients are present for one of the education sessions is essential for positive results. When tracking compliance outcomes, making note of the discharging HCP will assist with improving the outcomes. First, this information is vital for knowing the target audience. Second, it allows for opportunities to share current AHA or CMD information with the HCPs if compliance areas are not met. Conversely, it is an admirable way to acknowledge the HCPs for delivering excellence in quality patient care. Finally, making the quality measure compliance results transparent to the HCPs monthly or quarterly is a great reminder to keep up the good work and shows areas needed for improvement.

Implications for Further Application

Implications to improve educational opportunities and outcomes would include consideration to require mandatory attendance for the live sessions or creating an on-line education tutorial. It is imperative to have the key HCPs that are managing the inpatient HF patients to be fluently knowledgeable with the current HF EBGs to increase compliance rates and ultimately to improve patient outcomes. Having an on-line option would assist in capturing all of the necessary HCPs and could be offered to any other groups deemed appropriate. The on-line tutorial should be an easy addition for the hospital because they already have on-line education modules that are mandatory for HCPs to complete throughout the year. Although there may be an initial expense to implement the new module, they will be easy to disseminate once in place to the appropriate HCPs annually.

Implications for future practice should include consideration of adding an NP to the HF team to assist in providing continuing education to all HCPs and patients. A collaborative effort from NP with the HF nurse educators and cardiology medical director would be feasible to facilitate more latitude of leadership and educational opportunities. This joint collaboration for care coordination of HF patients could lead to significant improvement in quality of care and patient outcomes.

Gaps Identified

There were a few major gaps identified in this project that may have been critical to the outcome results. First, the population of HCPs was not well controlled. It is vital to for the data to be considered accurate to be sure the demographic population being taught the intervention and surveyed are truly the same as the HCP population managing the patients for which the outcomes are being measured. This was not possible to identified secondary to the unknown identity of the attendees. In addition to an uncontrolled population receiving the intervention it was impossible to identify if any of the attendees provided care for the HF in-patients. Again, this addresses the importance of knowing the target population.

It is interesting that compliance completing the CMD improved overall yet the total compliance implementing the EBGs dropped. Considering if the HCP did not go to the education session, but they reviewed the questions in the CMD, it would have prompted the provider to assess or deliver specific AHA EBGs for the patient. It is uncertain why this did not occur. However, it is possible the HCPs simply did not pay attention to the questions asked and simply completed the expected checks-offs from in the CMD. This is relevant to the work by Feinberg et al, (2012) who noted a CP would only be useful and prevent variations in care if the HCPs are open and supportive the change.

Conclusion

This project was an excellent start to evaluate the effectiveness of a currently in place EBG intervention to assess areas of strength, weakness, and potential for changes. Current recommendations and EBGs from the AHA were used to create the education presentation that was used for the teaching intervention. The educational PowerPoint and presentation was organized and delivered by compassionate, knowledgeable, and well-respected experts from the field. Areas of weakness were found in the target populations that were present for the education session. Particularly, there were no clearly identified cardiac care or senior HCPs present for either of the presentations. Of the HCPs that participated in the education session and surveys, more than 56% of them had less than one year of experience (Appendix L). Furthermore, having no way to link the HCPs tending to the HF in-patients with the HCPs that attended the education session, did not provide an accurate account for the effectiveness of the intervention.

The potential for practice change would include mandating cardiology and HF management focused providers to participate. However, the logistics of implementing this on a larger scale may be challenging in this setting unless there were additional options for attendance. Future recommendations to preclude this predicament would include offering education modules on-line or a webinar attendance. In addition, consideration for specific physician auditing for HF compliance may identify HCPs that would benefit from additional training.

To conclude, the significance of this project brought forth the importance to continue bringing awareness regarding the current recommend EBGs for HF to the primary HCPs managing acute HF in-patients. It is of the utmost importance to provide the essential care to HF patients and educate them before they transition to an outpatient setting if they are going to be

successful at maintaining their HF to avoid hospital readmissions. Although HF will likely continue to plague millions of Americans, it is the responsibility of the HCPs that manage the care of these patients to help reduce the mortality and morbidity related to this condition through good EBP.

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Appendix A

Table 1
Evaluation Table

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Level/Quality of Evidence; Decision for practice/ application to practice
<p>Bradley, E. H., (2012). Contemporary evidence about hospital strategies for reducing 30-day readmissions Country: US Funding: Commonwealth Fund; NIA; NIH; NHLBI; & AFAR Bias: Self-reported data and the risk of overstating results such as hospitals enrolled in the H2H quality improvement initiative</p>	<p>TCM</p>	<p>CSS Purpose: to determine the range and prevalence of practice being implemented by hospitals to reduce 30-day readmissions of PT with HF or AMI</p>	<p>N=537 Demographic: multiple hospitals in the US Setting: hospital Inclusion: hospitals enrolled in H2H located in New Haven, CT and Washington, DC as of July 2010 Exclusion: Non-H2H enrolled hospitals</p>	<p>IV1=QI resources /teams & PM IV2=ME D monitoring IV3=D/C & FU info DV=RR R30</p>	<p>Web-based survey on QI efforts and PM, MM, hospital teaching status, NSB, discharge & follow-up procedures</p>	<p>SF analysis IS t-tests Chi-square tests</p>	<p>N=537 hospitals 90.4% response rate IV1=87% IV2=28.9% IV3=25.5%</p>	<p>Level 3 Strengths: Large sample size, length of time for study almost 1 year, high response rate Weakness: no randomization, wide variation of implemented practice which we also self reported, descriptive studies,</p>

Note. **AA** – African American; **AFAR** – American Federation for Aging Research; **AHA** – American Heart Association; **AMI** – acute myocardial infarction; **ATC** – ambivalence toward change; **BC** - British Columbia; **CB** – collaboration; **CC** – community clinic; **CHC** – community health center; **CIHR** – Canadian Institutes of Health Research; **CBP** – collaborative practice; **CP** – clinical pathway; **CS** – case studies; **cs** – conversation styles; **CSS** – cross sectional study; **CT** – Connecticut; **DC** – direct cost; **D/C** – discharge; **DRs** – doctors; **DRTC** – dispositional resistance to change; **DS** – descriptive study; **DV** – dependent variable; **EA** - Ecological approaches; **EDR** – employees dispositional resistance to change; **ETCA** – employees trust in change agent; **ETM** – employees trust in management; **FG** – female; **FP** – family practice; **FU** – follow-up; **GP** – general practice; **H2H** – hospital to home; **HCS** – healthcare system; **HCT** – healthcare team; **HF** – heart failure; **HS&DR** – Health Services and Delivery Research; **HVP** - home visiting programs; **ICP** – integrated care pathways; **IDC** - indirect cost; **IL** – individual learning; **info** – information; **IP** – interprofessional; **IPE** – interprofessional education; **IPM** – interprofessional model; **IP-SDM** – new interprofessional model with shared decision making; **IS** – independent sample; **IV** – independent variable; **IWO** – identification with the organization; **MA** – mean age; **macro** – macro level; **MED** – medication; **meso** – meso level; **MG** – male gender; **micro** – micro level; **MM** – medication management; **MNG** – management; **MT** – mean tenure; **MDS-HF** – multidisciplinary heart failure; **N** – sample size (people); **n** – sample size (studies); **NH&NE** – National Health and Nutrition Examination; **NG** – negotiation; **NHLBI** –National Heart, Lung, and Blood Institute; **NIA** – National Institute on Aging; **NIH** – National Institute of Health; **NIHR** – National Institute for Health Research; **NR** – not reported; **NSB** – number of staffed beds; **OCB** – outpatient clinic based; **OCT** – organizational change theory; **OPC** – out patient clinic; **OPR** – Oncology Physicians Resources; **Ortho** – orthopedic; **PA** – perceived autonomy; **PC** – primary care; **PCP** – primary care physician; **PE** – primarily educational; **PHYS** – physicians; **PM** – performance monitoring; **PPC** – per person cost; **PPL** – percentage point lower; **PR** – pooling of resources; **prev** – prevalence; **psych** – psychiatric; **PT** - patient; **QI** – quality improvement; **RB** – role blurring; **RCT** – random control trial; **RE** – race/ethnicity; **R&M** – readmission and mortality; **RNs** – nurses; **RR** – risk ratio; **RRR30** – reduced readmission rates in 30-days; **R/T** – related to; **RTC** – resistance to change; **SA** – speech acts; **SDM** – shared decision making; **SF** – standard frequency; **SGM** - shared governance models; **SH** – stakeholder; **SIC** – support in change; **SOE** – strength of evidence; **SR & MA RCT** – systematic review & meta-analysis RCT; **STS** – structured telephone support; **SW** – social worker; **TCI** – transitional care intervention; **TCM** – Transitional Care Model; **TICA** - trust in change agent; **TIM** – trust in management; **TM** – telemonitoring; **TPB** – Theory of Planned Behavior; **UK** – United Kingdom; **US** – United States; **WHOICTRP** – World Health Organization International Clinical Trials Registry Platform; **y** – years;

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Level/Quality of Evidence; Decision for practice/ application to practice
Feinberg, B. A., (2012). Implementation of cancer clinical care pathways: A success model of collaboration between payers and providers Country: US Funding: OPR Bias: none noted	OCT	DS Purpose: determine if collaborative model between providers and payers to implement a CP affects PHYS behavioral change with compliance in the use of CP	N=3 Demographics: Private practice medical oncologists Setting: Michigan Inclusion: Network oncologist from academic-based practices and community based oncology practices Exclusion: outside oncology groups from selected 3	IV1 – SH incentives IV2 – CP DV – PHYS behavior	Expected: 70% compliance 1st year 80% subsequent years Compliance measured through claims using eobONE software tool	eobONE tool augmented and validated data from insurer of pt	88% CP compliance 1st year 95% CP 2nd year	Level 6 Strengths: > 80% compliance Weakness: 120 different treatment options were acceptable within the study, incomplete data capture related to problems with eobONE system used, missing or incomplete paper based forms and revenue codes

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Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Level/Quality of Evidence; Decision for practice/ application to practice
<p>Feltner, C., (2014). Transitional care interventions to prevent readmissions for persons with heart failure Country: US; Spain; Germany; UK; Canada; Sweden; Netherlands; Belgium; Brizil; Hong Kong; Taiwan; Ireland; Italy; Australia Funding: Agency for Healthcare Research and Quality Bias: publication bias and selective reporting</p>	<p>TCM</p>	<p>SR & MA RCT Purpose: to assess the efficacy, comparative effectiveness, and harms of transitional care interventions to reduce readmission and mortality rates for adults hospitalized with HF</p>	<p>n=47 RCT Demographics: MA: 70; moderate to severe HF Setting: HVP; MDS-HF clinic Inclusion: ≥ 18y with HF; TCI; comparison to usual care; ≥ 30 day follow-up; studies from 1990 – October 2013; English language; original research Exclusion: < 18y; hospital at home interventions; < 30 day follow-up; studies before 1990; language other</p>	<p>IV1 – HVP IV2 – STS IV3 – TM IV4 – OCB IV5 – PE IV6 – MDS-HF DV – 30 day readmissions</p>	<p>Data searches on MEDLINE, Cochorane, CINAHL, ClinicalTrials.gov, WHOICTRP Study selection by 2 reviewers – RCT, English, readmission or mortality within 6 months Stratified analyses Meta-analysis Graded SOE</p>	<p>Categorized interventions DerSimonian-Laird REM</p>	<p>47 trials IV1 & IV6=R²0.30 & R&M RR, 0.34 [95% CI, 0.19 to 0.62] Both with high evidence IV2=reduced HF readmission only with high evidence IV3, IV4, IV5 were insignificant</p>	<p>Level 1 Strengths: RCT, consistent testing group and variables, use of systemic reviews Weakness: publication bias and selective reporting, some methodological limitations, heterogeneity of outcome measures</p>

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<p>Heidenreich, P. A., (2013). Forecasting the impact of heart failure in the United States: A policy statement from the American Heart Association Country: US Funding: AHA Bias: Sampling error R/T estimated costs of HF done with survey data; human capital approach used to estimate indirect costs, no account to time value for informal caregivers; undervalued morbidity costs of none labor force; no account for changes in mortality or admission rates once</p>	<p>EA</p>	<p>CSS Purpose: to update & expand on prior work providing an in-depth look at how the changing demographics in the US will impact the prevalence and cost of care for HF. Hence, the need for aggressive prevention and management of HF and its complications</p>	<p>No exact sample measurement projections used Setting: US HF populations Inclusion: HF patients; age groups (18-44, 45-64, 65-79, ≥ 80 y); MG; FG; RE Exclusion: other health problems, outside the US</p>	<p>IV1 = age IV2 = sex IV3 = RE DV1 = HF DV2 = DC DV3 = IDC</p>	<p>DV1 prev and costs projected estimated by age, sex, RE Data from 1999-2008 NH&NE survey and US Census Bureau DV2&DV3 estimated with 2004-2008 MEPS</p>	<p>DV1=logit regression model with stepwise regressions DV2=2-part regression model with logistic regression model and generalized linear model with gamma distribution DV3=MES data & negative binomial model</p>	<p>IV1=>80yrs >2 million pts with HF IV2=1%>in MG IV3=greatest rise in AA 2.8%-3.6% from 2012-2030; DV2=65-79 yrs increase by 160% from \$11.50 billion to \$29.93 billion</p>	<p>Level 3 Strengths: methodology developed by AHA to project epidemiology and future costs of HF did not double count costs for comorbid conditions Weakness: costs were underestimated for treating all HF PT</p>

HF occurred								
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<p>Legare, F., (2011). Interprofessionalism and shared decision-making in primary care: A stepwise approach towards a new model</p> <p>Country: US; Canada; UK Funding: CIHR Bias: none noted</p>	<p>IPM</p>	<p>CSS Purpose proposal of a new model for an IP approach to a SDM in PC called IP-SDM model</p>	<p>N = 3231 n =38 Demographics: PHYS; RNs; pt; Setting: PC Inclusion: 18 SDM concepts, 10 IP concepts, 2 open key concepts</p>	<p>IV1 = micro (individual HCS level) IV2 = macro (2 level HCS – health policies, social context, & professional organization) IV3 = meso (2 level HCS – healthcare team & organizations) DV1 = IP-SDM model DV2 = pt Inclusion: SDM model defined as decision making between the pt and provider; describes the concepts used;</p>	<p>Review of 3 systematic reviews on SDM</p>	<p>Evaluation of 38 studies to create a new IP-SDM model for PC</p>	<p>IP-SDM for PC has potential to unify the process of SDM in different HCS</p> <p>Necessary for HCT to share knowledge and be involved throughout the decision making process</p>	<p>Level 3</p> <p>Strengths: systematic reviews used, various professions and disciplines, 3 countries participated</p> <p>Weakness: largely weighted by physicians as participants 89% which lacked interprofessional perspective</p>

				indicates the relationship between concepts Exclusion: any concepts outside the 3 key ones				
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<p>Manning, B. T., (2013). The orthopaedic forum: Overcoming resistance to implementation of integrated care pathways in orthopaedics Country: US Funding: none Bias: a few of the authors had a financial relationship with their institution with an entity in the biomedical arena and a couple of authors have had another relationship or engaged in activity that could</p>	<p>OCT</p>	<p>CS Purpose: recommendation to prevent orthopaedic surgeon resistance to ICP</p>	<p>Demographics: Ortho PHYS; Setting: hospital and office Inclusion and Exclusion: NR</p>	<p>IV1 = PA IV2 = resources IV3 = incentives IV4 = forcing DV1 = RTC</p>	<p>Review of various studies</p>	<p>Comparison of multiple studies regarding PHYS resistance to ICP to formulate best approach to prevent resistance</p>	<p>IV1&IV2 Promote CB and provide incentives DV1=reduced RTC</p>	<p>Level 4 Strengths: proposal for ICPs and methods to reduce RTC is supported by literature Weakness: Studies used to support theory do not indicate level of study. No RCTs</p>

have influenced their written work								
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<p>Mickan, S., (2010). Collaborative practice in a global health context: Common themes from developing countries Country: UK; Canada; Oman; Slovenia; Sweden; Thailand; Denmark; India; Japan; Nepal Funding: none Bias: none noted</p>	<p>EA</p>	<p>CS Purpose: explore common themes of collaborative practice</p>	<p>n=10 Demographics: DRs; RNs; pts; dentists; SW Setting: FP urban; GP urban; psych hospital semi-urban; hospital; CHC urban; CC rural; OPC urban; Inclusion: case studies, diverse geographical organizations focused on PC, English and non-English speaking, collaborative practice Exclusion: answers that did not fit their</p>	<p>IV1 = SGM IV2 = IPE DV =CBP</p>	<p>Short questioner with open ended questions</p>	<p>Descriptive analysis guided by definitions of CB practice</p>	<p>CB practice encourage team working across sectors; need for good MNG & leadership, IPE</p>	<p>Level 4 Strengths: case studies were consistent with research literature from developed and developing countries, global study Weakness: all information pulled from one organization</p>

			definition of collaborative practice					
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<p>Oreg, S., (2011). Ambivalence toward imposed change: The conflict between dispositional resistance to change and the orientation toward the change agent Country: Israel Funding: partial funding by The Open University of Israel Research Fund Bias: none noted</p>	<p>TPB</p>	<p>CSS Purpose: to determine if how employees feel about the concept of change and how they feel about the change agent yield ambivalence toward change</p>	<p>N1 = 172 MG = 88% MNG = 54% MA = 42.57 MT = 13.89 DRTC = 3.20 TIM = 3.84 ATC = 1.49 N2 = 104 FG = 66% MA = 39.65 DRTC = 2.95 ATC = 2.85 N3 = 89 MG= 49% FG = 42% MA = 45 MT = 2.27 DRTC = 3.18 TICA = 2.53 ATC = 3.47 SIC = 2.34 Demographics:</p>	<p>IV1 = EDR IV2 = ETM IV3=IWO IV4=ETCA DV1 = ATC DV2=DRTC</p>	<p>N1=survey DRTC scale=Cronbach’s alpha coefficient 0.86 ETM scale=0.92 ATC scale=pos or neg ambivalence N2=questionnaires DRTC scale=Cronbach’s alpha 0.88 IWO scale=0.87 ATC scale=0.85 N3=questionnaires DRTC scale=Cronbach’s alpha 0.90 ETCA scale=0.92 ATC scale=0.86</p>	<p>Descriptive statistics; t-test used to compare the groups</p>	<p>N1=descriptive stats; simple slope=0.50, t(170)=2.79, p<0.1 relationship btw DRTC and ATC not sig different N2=descriptive stat; relationship btw DRTC & ATC was pos for high IWO; simple slope=0.79, t(104)=2.99, p<0.01; low IWO was neg simple slope= -0.49, t(104)=1.67, p<0.05; statistically sig N3=descriptive stat; relationship btw DRTC & ATC with high trust simple slope=0.54, t(89)=2.72, p<0.01;</p>	<p>Level 3 Strengths: ample sample size, each study was measured by descriptive statistics Weakness: data was collected from a single source with the same survey methodology</p>

			<p>employees from a defense industry undergoing a merger;</p> <p>Setting: defense industry; electric company</p> <p>Inclusion: data from a defense industry collected several months into the change measuring dispositional RTC, TIM, DRTC, identification with the organization, TICA, and ambivalence</p> <p>Exclusion: information from people outside the defense industry</p>				<p>DRTC & ATC low trust simple slope= - 0.36, $t(89)=-2.04$, $p<0.05$;</p> <p>Polynomial regression analysis to test hypothesis 2 $B=-0.24$, $p<0.05$</p>	
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<p>Pieterse, J. H., (2012). Professional discourses and resistance to change</p> <p>Country: The Netherlands</p> <p>Funding: none noted</p> <p>Bias: none noted</p>	<p>OCT</p>	<p>CS</p> <p>Purpose: to investigate how RTC might be a consequence of differences in professional discourse of professional groups working together in a change program</p>	<p>N=27</p> <p>Demographics : technical department employees including MNG & shop floor staff working together in a change program</p> <p>Setting: technical department of a European airline</p> <p>Inclusion: European airline, employees of the technical department that were introduced to the ICT system (TRAX)</p> <p>Exclusion:</p>	<p>IV1 = SA</p> <p>IV2 = cs</p> <p>IV3 = NG</p> <p>DV = RTC</p>	<p>Semi-structured interviews</p> <p>Desk research</p> <p>Observation of team</p>	<p>Qualitative research design</p> <p>Syntagmatic analysis using WordSmith</p>	<p>IV1=lack of reflection with assertive speech vs general caused deterioration in the group</p> <p>IV2=scorning in conversation lead to closed conversations</p> <p>IV3=formal conversations showed cooperative styles – informal setting identified non-cooperative</p>	<p>Level 4</p> <p>Strengths: simultaneous use of different discourse measurement tools</p> <p>Weakness: formal discourse analysis was based on transcripts from only two sessions, selection of utterances in the discourse analysis was somewhat subjective</p>

			other departments from the airline					
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Note. **AA** – African American; **AFAR** – American Federation for Aging Research; **AHA** – American Heart Association; **AMI** – acute myocardial infarction; **ATC** – ambivalence toward change; **BC** - British Columbia; **CB** – collaboration; **CC** – community clinic; **CHC** – community health center; **CIHR** – Canadian Institutes of Health Research; **CBP** – collaborative practice; **CP** – clinical pathway; **CS** – case studies; **cs** – conversation styles; **CSS** – cross sectional study; **CT** – Connecticut; **DC** – direct cost; **D/C** – discharge; **DRs** – doctors; **DRTC** – dispositional resistance to change; **DS** – descriptive study; **DV** – dependent variable; **EA** - Ecological approaches; **EDR** – employees dispositional resistance to change; **ETCA** – employees trust in change agent; **ETM** – employees trust in management; **FG** – female; **FP** – family practice; **FU** – follow-up; **GP** – general practice; **H2H** – hospital to home; **HCS** – healthcare system; **HCT** – healthcare team; **HF** – heart failure; **HS&DR** – Health Services and Delivery Research; **HVP** - home visiting programs; **ICP** – integrated care pathways; **IDC** - indirect cost; **IL** – individual learning; **info** – information; **IP** – interprofessional; **IPE** – interprofessional education; **IPM** – interprofessional model; **IP-SDM** – new interprofessional model with shared decision making; **IS** – independent sample; **IV** – independent variable; **IWO** – identification with the organization; **MA** – mean age; **macro** – macro level; **MED** – medication; **meso** – meso level; **MG** – male gender; **micro** – micro level; **MM** – medication management; **MNG** – management; **MT** – mean tenure; **MDS-HF** – multidisciplinary heart failure; **N** – sample size (people); **n** – sample size (studies); **NH&NE** – National Health and Nutrition Examination; **NG** – negotiation; **NHLBI** –National Heart, Lung, and Blood Institute; **NIA** – National Institute on Aging; **NIH** – National Institute of Health; **NIHR** – National Institute for Health Research; **NR** – not reported; **NSB** – number of staffed beds; **OCB** – outpatient clinic based; **OCT** – organizational change theory; **OPC** – out patient clinic; **OPR** – Oncology Physicians Resources; **Ortho** – orthopedic; **PA** – perceived autonomy; **PC** – primary care; **PCP** – primary care physician; **PE** – primarily educational; **PHYS** – physicians; **PM** – performance monitoring; **PPC** – per person cost; **PPL** – percentage point lower; **PR** – pooling of resources; **prev** – prevalence; **psych** – psychiatric; **PT** - patient; **QI** – quality improvement; **RB** – role blurring; **RCT** – random control trial; **RE** – race/ethnicity; **R&M** – readmission and mortality; **RNs** – nurses; **RR** – risk ratio; **RRR30** – reduced readmission rates in 30-days; **R/T** – related to; **RTC** – resistance to change; **SA** – speech acts; **SDM** – shared decision making; **SF** – standard frequency; **SGM** - shared governance models; **SH** – stakeholder; **SIC** – support in change; **SOE** – strength of evidence; **SR & MA RCT** – systematic review & meta-analysis RCT; **STS** – structured telephone support; **SW** – social worker; **TCI** – transitional care intervention; **TCM** – Transitional Care Model; **TICA** - trust in change agent; **TIM** – trust in management; **TM** – telemonitoring; **TPB** – Theory of Planned Behavior; **UK** – United Kingdom; **US** – United States; **WHOICTRP** – World Health Organization International Clinical Trials Registry Platform; **y** – years;

Citation	Conceptual Framework	Design/ Method	Sample/ Setting	Major Variables & Definitions	Measurement	Data Analysis	Findings	Level/Quality of Evidence; Decision for practice/ application to practice
<p>Sims, S., (2014). Evidence of collaboration, pooling of resources, learning and role blurring in interprofessional healthcare teams: A realist syntheses Country: UK Funding: NIHR & HS&DR Bias: none noted</p>	<p>IPM</p>	<p>CSS Purpose: to help policy makers and practitioners “make sense” of a complex intervention and help resolve unexplained variation in intervention effectiveness</p>	<p>n=109 Demographics: professionals working in a team setting in a collaborative and cooperative manner Setting: hospital & home Inclusion: literature search with AMED, CINAHL, MEDLINE, IBSS, electronic health and social care databases HMIC, Psychinfo, ASSIA, and Scopus</p>	<p>IV1 = CB IV2 = PR IV3 = IL IV4 = RB DV = IP-HCT</p>	<p>8 databases AMED, CINAHL MEDLINE IBSS HMIC Psychinfo ASSIA Scopus Inclusion criteria of interprofessional teamworking (collaboration, coordination, pooling of resources, individual learning, role blurring)</p>	<p>Realist synthesis was exhausted until no new evidence was found</p>	<p>IV1 – n=47 CB built trust and respect promoting confidence in colleagues abilities; role clarity; reinforced team goals helped problem solve IV2 – n=23 PR improved problem solving; IV3 – n=15 IL promoted by interaction to learn from each other in meetings IV4 – n=24 Sharing other team members knowledge gained greater individual expertise and confidence</p>	<p>Level 3 Strengths: ample sample size and data bases used with exhausted research Weakness: evidence for individual learning</p>

			<p>Exclusion: papers and information that did not include collaboration, coordination, pooling of resources, individual learning or role blurring</p>					
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Note. **AA** – African American; **AFAR** – American Federation for Aging Research; **AHA** – American Heart Association; **AMI** – acute myocardial infarction; **ATC** – ambivalence toward change; **BC** - British Columbia; **CB** – collaboration; **CC** – community clinic; **CHC** – community health center; **CIHR** – Canadian Institutes of Health Research; **CBP** – collaborative practice; **CP** – clinical pathway; **CS** – case studies; **cs** – conversation styles; **CSS** – cross sectional study; **CT** – Connecticut; **DC** – direct cost; **D/C** – discharge; **DRs** – doctors; **DRTC** – dispositional resistance to change; **DS** – descriptive study; **DV** – dependent variable; **EA** - Ecological approaches; **EDR** – employees dispositional resistance to change; **ETCA** – employees trust in change agent; **ETM** – employees trust in management; **FG** – female; **FP** – family practice; **FU** – follow-up; **GP** – general practice; **H2H** – hospital to home; **HCS** – healthcare system; **HCT** – healthcare team; **HF** – heart failure; **HS&DR** – Health Services and Delivery Research; **HVP** - home visiting programs; **ICP** – integrated care pathways; **IDC** - indirect cost; **IL** – individual learning; **info** – information; **IP** – interprofessional; **IPE** – interprofessional education; **IPM** – interprofessional model; **IP-SDM** – new interprofessional model with shared decision making; **IS** – independent sample; **IV** – independent variable; **IWO** – identification with the organization; **MA** – mean age; **macro** – macro level; **MED** – medication; **meso** – meso level; **MG** – male gender; **micro** – micro level; **MM** – medication management; **MNG** – management; **MT** – mean tenure; **MDS-HF** – multidisciplinary heart failure; **N** – sample size (people); **n** – sample size (studies); **NH&NE** – National Health and Nutrition Examination; **NG** – negotiation; **NHLBI** –National Heart, Lung, and Blood Institute; **NIA** – National Institute on Aging; **NIH** – National Institute of Health; **NIHR** – National Institute for Health Research; **NR** – not reported; **NSB** – number of staffed beds; **OCB** – outpatient clinic based; **OCT** – organizational change theory; **OPC** – out patient clinic; **OPR** – Oncology Physicians Resources; **Ortho** – orthopedic; **PA** – perceived autonomy; **PC** – primary care; **PCP** – primary care physician; **PE** – primarily educational; **PHYS** – physicians; **PM** – performance monitoring; **PPC** – per person cost; **PPL** – percentage point lower; **PR** – pooling of resources; **prev** – prevalence; **psych** – psychiatric; **PT** - patient; **QI** – quality improvement; **RB** – role blurring; **RCT** – random control trial; **RE** – race/ethnicity; **R&M** – readmission and mortality; **RNs** – nurses; **RR** – risk ratio; **RRR30** – reduced readmission rates in 30-days; **R/T** – related to; **RTC** – resistance to change; **SA** – speech acts; **SDM** – shared decision making; **SF** – standard frequency; **SGM** - shared governance

models; **SH** – stakeholder; **SIC** – support in change; **SOE** – strength of evidence; **SR & MA RCT** – systematic review & meta-analysis RCT; **STS** – structured telephone support; **SW** – social worker; **TCI** – transitional care intervention; **TCM** – Transitional Care Model; **TICA** - trust in change agent; **TIM** – trust in management; **TM** – telemonitoring; **TPB** – Theory of Planned Behavior; **UK** – United Kingdom; **US** – United States; **WHOICTRP** – World Health Organization International Clinical Trials Registry Platform; **y** – years;

Appendix B

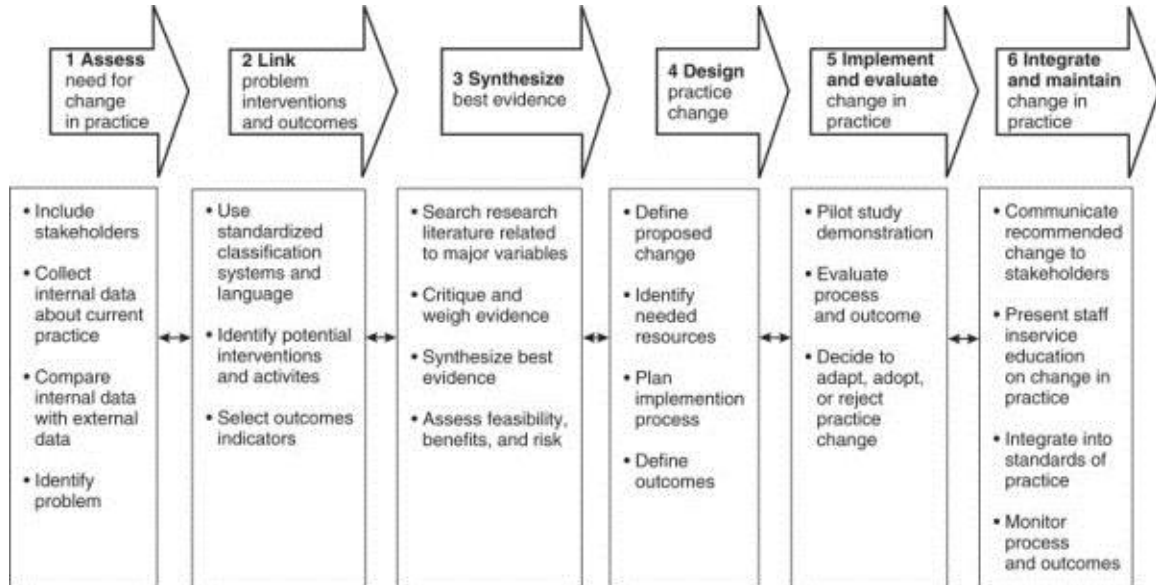
Synthesis Table

	Bradley	Feinberg	Feltner	Heidenreich	Legara	Manning	Mickan	Oreg	Pietrrese	Sims
Year	2012	2012	2014	2013	2011	2013	2010	2011	2012	2014
Design	CSS	DS	SR & MA RCT	CSS	CSS	CS	CS	CSS	CS	CSS
N=people n=studies	N=599	UNK	n=47	UNK	N=3231 n=38	UNK	n=10	N=172 N=104 N=89	N=27	n=109
LOE	III	VI	I	III	III	IV	IV	III	IV	III
Demographics										
HF	X		X	X						
Other Dz		X	X		X	X	X			
Non-Healthcare								X	X	X
OC	X	X	X		X	X		X	X	X
Interventions										
Written protocol	X	X	X			X				
MED monitoring	X	X	X							
F/U scheduled before d/c	X									
CP	X	X				X				
MDS-HFC			X							
TCC	X		X							
STS			X							
HVP			X							
Interprofessional or Multidisciplinary Collaboration	X	X	X		X	X	X			X
OTC		X			X	X	X	X	X	X
Outcomes										
Reduced 30-day Readmissions	X		X							
Cost increase				X						
Cost decrease	X	X	X			X				
Decrease RTC						X	X	X	X	X
Improve patient satisfaction	X	X	X		X	X	X			
Improve professionals satisfaction		X	X		X	X	X	X		X

Note: CP – clinical pathway; CS – case study; CSS – cross sectional study; D/C – discharge; DS – descriptive study; Dz – disease; F/U – follow up; HF – heart failure; HVP – home visiting programs; LOE – level of evidence; RCT – resistance to change; MED – medication; MDS-HFC – multidisciplinary heart failure clinic; N – sample size (people); n – sample size (studies); OC – organizational change; OTC – orientation toward change; PCP – primary care physician; SR&MA RCT - systematic review & meta-analysis RCT; STS – structured telephone support; TCC – transitional care center; UNK – unknown

Appendix C

EBP Model: Rosswurm and Larrabee – Model for Change to EBP



Appendix D

Conceptual Framework



- **Focus**

- Collaborative and comprehensive holistic multidisciplinary care
- Implementing an EBP plan of care with patient, family, caregivers, and HCPs
- Educating the patient, family, and caregivers on medications
- Follow-up appointment scheduled within 7 days from discharge and prior to release from the hospital

(University of Pennsylvania [UP], n.d.; TCM Image, n.d.)

Appendix E

IRB Approval Letter



APPROVAL: EXPEDITED REVIEW

Monica Rauton
 CONHI - DNP
 928/639-7242
 monica.rauton@asu.edu

Dear Monica Rauton:

On 9/8/2015 the ASU IRB reviewed the following protocol:

Type of Review:	Initial Study
Title:	Effects of Education for Hospital Providers on Compliance with Core Measures for Heart Failure
Investigator:	Monica Rauton
IRB ID:	STUDY00002999
Category of review:	(5) Data, documents, records, or specimens, (7)(a) Behavioral research
Funding:	None
Grant Title:	None
Grant ID:	None
Documents Reviewed:	<ul style="list-style-type: none"> • Demographic Questionnaire .pdf, Category: Screening forms; • Conway Student Consent_COVER_LETTER.pdf, Category: Consent Form; • Post-Education Survey.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Effects of Education for Heart Failure Core Measures , Category: IRB Protocol; • Provider Recruitment Flyer Conway.pdf, Category: Recruitment Materials; • Systems process outcomes copy.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • DNP Projects Content Validity report.pdf, Category: Measures (Survey questions/Interview questions

	/interview guides/focus group questions); • Letter of Support from St. Joes.pdf, Category: Other (to reflect anything not captured above); • Pre-Educaiton Survey.pdf, Category: Measures (Survey questions/Interview questions /interview guides/focus group questions); • Student Recruitment email invitation .pdf, Category: Recruitment Materials; • Conway Educational Session Topical outline .docx, Category: IRB Protocol;
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The IRB approved the protocol from 9/8/2015 to 9/7/2016 inclusive. Three weeks before 9/7/2016 you are to submit a completed Continuing Review application and required attachments to request continuing approval or closure.

If continuing review approval is not granted before the expiration date of 9/7/2016 approval of this protocol expires on that date. When consent is appropriate, you must use final, watermarked versions available under the “Documents” tab in ERA-IRB.

In conducting this protocol you are required to follow the requirements listed in the INVESTIGATOR MANUAL (HRP-103).

Sincerely,

IRB Administrator

cc: Beth Conway

Appendix F

Site Approval Letter



3030 N. Central Avenue, Suite 1402
Phoenix, AZ 85012

August 31, 2015

To whom it may concern,

On behalf of St. Joseph's Hospital and Medical Center, Dignity Health of Arizona, I am pleased to support the quality improvement project titled "Effects of Education for Hospital Providers on Compliance with Core Measures for Heart Failure" as proposed by Dr. Monica Rauton and Beth Conway RN, BSN, graduate student.

Our hospital agrees to serve as the quality improvement project site for de-identified data collection without need for access to the electronic medical records, education sessions, and data analysis.

Thank you for providing the opportunity for St. Joseph's Hospital and Medical Center, Dignity Health of Arizona, to a part of this important project.

Sincerely,

A handwritten signature in black ink, appearing to read "Keith Frey".

Keith Frey, MD, MBA
Chief Physician Executive
St. Joseph's Hospital and Medical Center, Dignity Health of Arizona

Appendix G

Systems Process Outcomes

ID _____

Observation Period _____

Systems Process Outcomes

1. Measure of Ejection Fraction function $\leq 20\%$ $\leq 30\%$ $\leq 40\%$ $\leq 50\%$ $> 50\%$
2. ACE/ARB Yes No NA with clinical indication listed
3. Beta-Blocker Yes No NA with clinical indication listed
 - a. Bisoprolol
 - b. Carvedilol (Coreg)
 - c. Metoprolol Succinate CR/XL
 - d. Other
4. 60 minutes of HF education Yes No
5. Follow-up appointment scheduled within 7 days of discharge Yes No
6. Aldosterone Antagonist at discharge Yes No NA with clinical indication listed
7. Anticoagulation for A-Fib/Aflutter Yes No NA with clinical indication listed
8. Hydralazine Nitrate at discharge Yes No NA with clinical indication listed
9. Heart failure core measures documentation completed in Cerner Yes No

 IRB Number 00002999

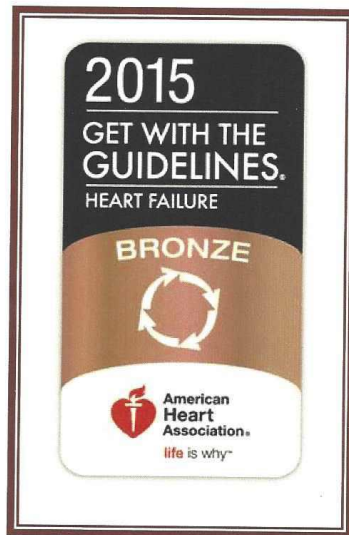
September 8, 2015

Appendix H

Overview of Education Presentation

Help St. Joseph's Get With the Guidelines !

We have the Bronze... Let's go for the Gold!



St. Joseph's Hospital has achieved the American Heart Association's Get With the Guidelines Bronze designation for Heart Failure. This award demonstrates the quality care we provide for our Heart Failure population using evidence-based practice. Help us get the Gold by ensuring Heart Failure patients are receiving the appropriate care.

American Heart Association Get With the Guidelines Heart Failure Quality Measures

- ✓ Measure of LV function
- ✓ ACE/ARB for patients with LVSD
- ✓ Evidence-based specific beta blocker (Bisoprolol, Carvedilol, Metoprolol Succinate CR/XL)
- ✓ Aldosterone antagonist
- ✓ For African American patients with LVSD, hydralazine nitrate
- ✓ Anticoagulation for atrial fibrillation or flutter
- ✓ Follow-up appointment within 7 days of discharge, scheduled prior to discharge
- ✓ CRT-D or CRT-P placed or prescribed for EF < 35%
- ✓ ICD counseling or ICD placed or prescribed for EF < 35%
- ✓ DVT prophylaxis
- ✓ Influenza vaccination (during season) and PNA vaccination

The **Core Measures Form, located in Cerner**, is a tool designed to simplify the documentation of these core metrics and it **needs to be completed on every primary diagnosis Heart Failure patient**. When any of these guidelines are not appropriate for a patient, **contraindications must be documented**.

For questions or assistance, please contact: Dawn Flynn RN, BSN, Nurse Education Specialist for Inpatient Cardiac Rehabilitation, at 602-406-6586 (O), 602-406-5311 (ascom), 602-746-0780 (pager) or dawn.flynn@DignityHealth.org

Appendix I

Education Session and Project Outline

Educational Session Topical Outline

I. Brief Overview

Heart Failure (HF) is a highly prevalent condition associated with increased mortality, morbidity, and healthcare costs. Patterns of inconsistencies and deviations in the use of evidenced based guideline (EBGs) clinical pathways for HF are responsible for increased hospitalizations, costs, and fatal outcomes. Insuring the recommended EBGs is being applied in practice is the best way to improve quality of care and life for patients as well as reduce costs particularly those associated with re-admissions within 30 days of discharge. Review of these guidelines and how/where to document meeting these core measures in the electronic medical records will be reviewed.

II. Why this Matters to St. Joseph's Hospital

- 1) Current practice of poor compliance for HF EBGs and core measures documentation
- 2) Need to improve patient care and outcomes to reduce unnecessary costs related to readmissions
- 3) Goal of hospital to be a center of excellence in cardiac care
- 4) Current Bronze award holder for Get with the Guidelines with a goal of Gold

III. Timeline of Project

IV. Explanation of Data Collection for Clinical Practice Evaluation and Analysis

- Surveys- Healthcare providers
- Survey- Systems outcomes

V. Purpose/Outcome(s) for the Clinical Practice Evaluation and Analysis

- 1) Measure providers current knowledge, attitudes, and beliefs regarding HF EBGs and use of the electronic medical records system
- 2) Educate providers on current American Heart Association EBGs for HF
- 3) Improve implementation of EBGs for HF patients
- 4) Insure continuum of care after hospital discharge
- 5) Educate providers on the use of core measures documentation
- 6) Reduce 30-day readmissions related to HF

VI. Conclusion

Appendix J

Demographic Questionnaire

ID	Demographic Questionnaire Circle which best apply or fill in "other"	Date
	<p>1. Gender</p> <p>Male Female</p>	
	<p>2. Age</p> <p>< 25 years</p> <p>25 to 35 years</p> <p>36 to 45 years</p> <p>46 to 55 years</p> <p>56 to 65 years</p> <p>> 65 years</p>	
	<p>3. Employee of:</p> <p>Dignity Health</p> <p>Partner Association</p> <p>Other: _____</p>	
	<p>4. Employment Title</p> <p>Attending Physician</p> <p>Resident Physician</p> <p>Medical Student</p> <p>Nurse Practitioner</p> <p>Physician Assistant</p> <p>Other: _____</p>	
	<p>5. Employment Title Specialty</p> <p>Cardiology</p> <p>Internal Medicine</p> <p>Hospitalist</p> <p>Heart and Lung</p> <p>Pulmonology</p> <p>Other: _____</p>	
	<p>6. Years of Practice</p> <p>< 1year</p> <p>1 to 5 years</p> <p>6 to 10 years</p> <p>11 to 20 years</p> <p>> 20 years</p>	
	<p>7. Years with Dignity Health</p> <p>< 1year</p> <p>1 to 5 years</p> <p>6 to 10 years</p> <p>11 to 20 years</p> <p>> 20 years</p>	

IRB #

Date

Appendix K

Pre/Post Education Survey

ID: _____ Education Pre-Test _____ Date: _____

1. I am knowledgeable with the current 2013 AHA Get With The Guidelines Heart Failure/Acute MI Quality Measures?

Strongly Disagree Disagree Undecided Agree Strongly Agree

2. I implement all of the recommended therapies or medications according to the guidelines unless there is a contraindication?

Strongly Disagree Disagree Undecided Agree Strongly Agree

3. I understand the importance of completing the core measures documentation on every heart failure/acute MI patient?

Strongly Disagree Disagree Undecided Agree Strongly Agree

4. I know how to access and I am comfortable filling out the core measures documentation for heart failure/acute MI in Cerner?

Strongly Disagree Disagree Undecided Agree Strongly Agree

5. I know how to reconcile home, admission, and discharge medication using the medication reconciliation tab in Cerner?

Strongly Disagree Disagree Undecided Agree Strongly Agree

6. I know how to put in a request to consult cardiac rehab for my patients with heart failure or acute MI?

Strongly Disagree Disagree Undecided Agree Strongly Agree

7. I think an education session on the current 2013 AHA Get With The Guidelines Heart Failure/Acute MI Quality Measures and review of using the core measures documentation tool is helpful to provide quality care for my patients?

Strongly Disagree Disagree Undecided Agree Strongly Agree

IRB #

Date of Approval

Appendix L

Table 2

Sample Demographics

Characteristic	n	(%)
Gender		
Male	13	(43.3)
Female	17	(56.7)
Age		
<25 years	3	(10)
26-35 years	25	(83.3)
36-45 years	2	(6.7)
Title		
Attending physician	0	(0)
Resident physician	25	(83.3)
Medical student	5	(16.7)
Nurse practitioner	0	(0)
Specialty		
Cardiology	0	(0)
Internal Medicine	9	(30)
Hospitalist	1	(3.3)
Family	14	(46.7)
Pulmonology	0	(0)
Other	5	(20)
Years in practice		
<1 year	17	(56.7)
1-5 years	13	(43.3)

Appendix M

Table 3

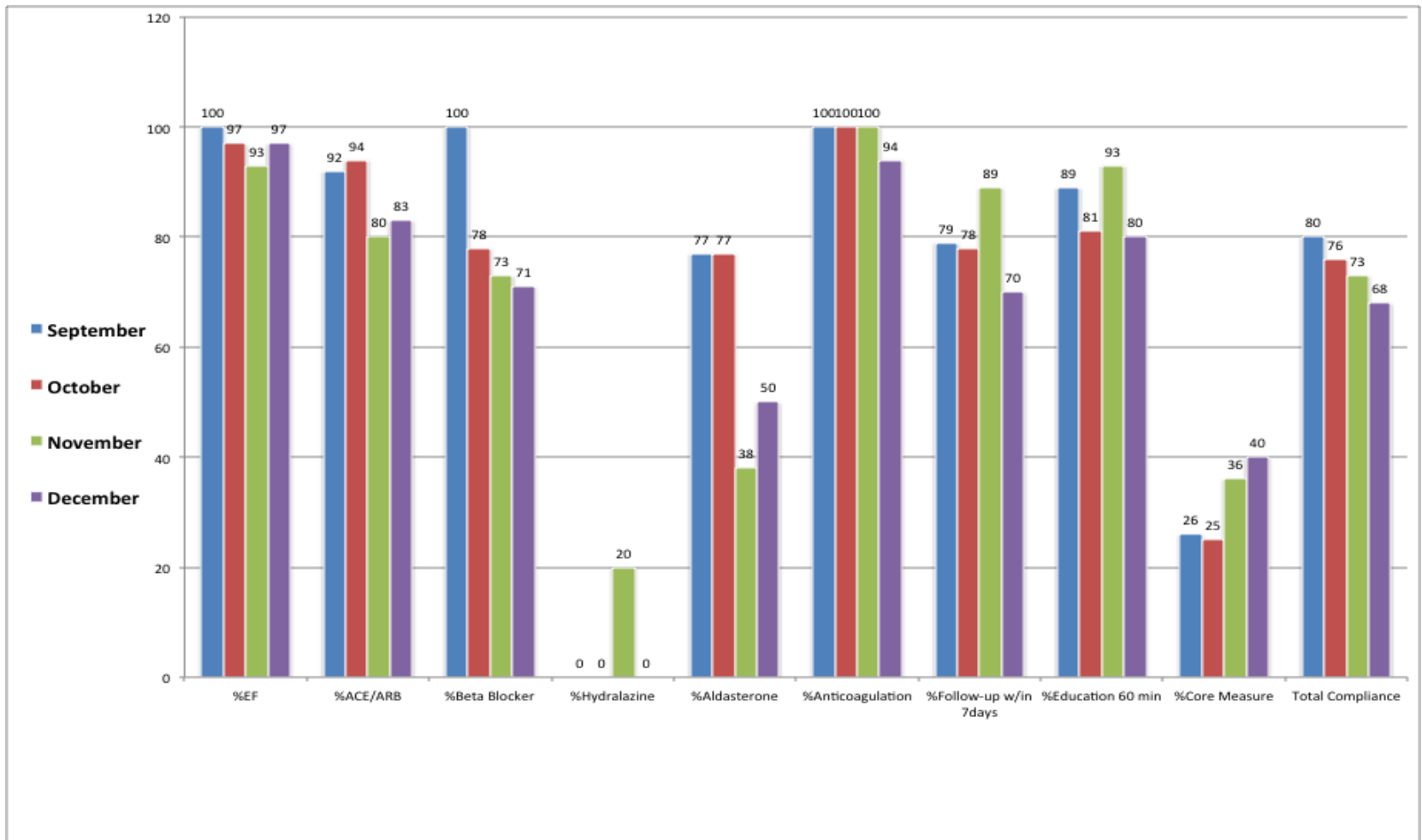
Pre/Post education surveys

	Paired differences					t	df	Sig
	Mean	Std Dev	Std Error Mean	95% CI				
				LL	UL			
Overall Knowledgeable Level	-1.400	1.133	0.207	-1.823	-0.977	-6.770	29	<0.001*
Implementations of Recommendations	-0.767	0.858	0.157	-1.087	-0.446	-4.892	29	<0.001*
Understand Importance of completing CMD	-0.733	0.828	0.151	-1.042	-0.424	-4.853	29	<0.001*
How to access core measure in EMR	-0.900	0.759	0.139	-1.183	-0.617	-6.496	29	<0.001*
How to reconcile meds in EMR	-0.367	0.669	0.122	-0.616	0.117	-3.003	29	0.005*
How to request Cardiac rehab	0.167	5.509	1.006	-1.890	2.224	0.166	29	0.870
Is education helpful for quality care	-0.233	0.935	0.171	-0.583	0.116	-1.366	29	0.182

Note: * denotes statistical significance of $p = <0.05$.

Appendix N

Figure 1.0. Monthly Quality Measures Compliance



Appendix O

Table 4:

Cost of project implementation

<i>Item</i>	<i>Cost</i>
Printed paper for surveys (200 copies)	\$8.00
Consent Forms (100 copies)	\$4.00
Education handouts (200 color copies)	\$24.00
Demographic sheet (100 copies)	\$4.00
Quality measures (200 count)	\$8.00
Lunch/Snack	\$350.00
Educational Session	\$35-45 estimated nurse educator hr/rate