Solution Title: Screening Can Improve Identification of Depression in Hospitalized Congestive Heart Failure Patients

Overview of Project

Depression and heart disease affect millions of people worldwide. The interactions of personality traits, psychiatric symptoms and environmental stressors with the cardiovascular system intrigue clinicians interested in factors that contribute to the development and progression of heart disease. More than 5 million Americans suffer from heart failure (HF), with another 670,000 cases diagnosed each year. HF is the most costly diagnosis in the Medicare population and is the most common cause for hospitalization in patients older than 65 years. Clinical depression is common in HF, with prevalence estimates ranging from 24%-42%. The prevalence rate for the general population is only 6.6% for depression.

Treatment for HF consists of a regimen of medications, diet, exercise, smoking cessation, alcohol cessation and self-monitoring, aimed at increasing the patient’s functional capacity and quality of life. Non-adherence to treatment is a widespread problem. Given this issue, the identification and treatment of potential predictors of non-adherence are critical for improving interventions for HF. Social support and depression are two of the most studied and robust factors that have been linked to improved disease management behaviors in HF patients. HF patients with comorbid depression are three times more likely than non-depressed HF patients to adhere to their treatment regimens.

Research shows the effects of depression on cardiac morbidity and mortality. The evidence falls into three categories. First, depression predicts the onset of and poor prognosis for heart disease (Sherwood et al., 2011). Second, the link between depression and coronary heart disease is due in part to the link between depression and cardiac risk factors and behaviors (Lichtman et al., 2008). Third, other studies suggest that coronary heart disease may contribute to clinically significant depressive symptoms especially among women (Ali, Rollman, & Berger, 2010). Continually escalating healthcare costs prompted organizations to seek ways to improve patient health. One such initiative is the integration of medical and behavioral healthcare. According to a recent Milliman (2014) report on the economic impact of integrated medical-behavioral healthcare, comorbid mental health and medical conditions can drive cost 2-3 times higher than those patients who do not have a comorbid mental health/medical condition. Unfortunately, many individuals with chronic medical conditions and co-occurring mental health disorders are never treated for their behavioral conditions.

Routine screening and assessment for depression rarely occurs in clinical practice for a variety of reasons, including the absence of systems to facilitate the procedure. The American Heart Association encourages screening for depression and suggests that it may be prudent to reassess symptoms of depression routinely in HF patients who are at risk for adverse clinical outcomes.
and impaired quality of life. Comorbid depression is associated with increased medical symptom burden, functional impairment, medical costs, poor adherence to self-care regimens and increased risk of morbidity and mortality in patients with HF.

**Process**

University of Maryland Upper Chesapeake Health consists of two hospitals: Harford Memorial Hospital (HMH) and Upper Chesapeake Medical Center (UCMC). HMH is a community hospital located in Havre de Grace. UCMC is located in Bel Air, Maryland. The organization is dedicated to improving the health of people in its community through an integrated health delivery system that provides high quality care. Recognizing that HF patients are frequently readmitted and that there was not a process in place to screen for depression, which may contribute to readmission and poor adherence to medical regime, a project was conducted on a telemetry floor at HMH (25 beds) and a telemetry floor at UCMC (32 beds) using the Patient Health Questionnaire-9. Many studies were conducted to validate the use of the Patient Health Questionnaire-9, and results support the validity of using the tool to screen for depression. (Manea, Kurtais, Tur, Gulec, & Seckin, 2012).

UCH coding records from 2012 indicated that 19% of the patients admitted with HF at UCH coded positive for depression from their History and Physical. However, there was no screening in place to recognize and identify depression in patients that did not have a prior history or did not self-disclose. Nor was there a way to identify if depression had worsened and a patient needed an intervention such as a psychiatric consultation.

The framework for managing the change was John Kotter’s eight step change model (Kotter, 1996). Successful change occurs when there is a commitment, a sense of urgency or momentum, guiding coalition, openness, clear vision, good and clear communication, removal of obstacles, creating short-term wins, building on the change, and embedding the change into the culture with strong leadership, and a well-executed plan.

A sense of urgency was established by explaining the project and providing education to over 80 nursing staff and the physician groups that admit to the telemetry floor at the two project hospitals. A guiding coalition was formed by nursing champions on each of the floors who assured that participants were screened and information obtained was kept secure. Vision was
obtained by generating enthusiasm about the project. Giving the background information on depression and HF intrigued the staff who then wondered how their unit would score in relationship to the overall prevalence of depression in HF patients in the country. Clear objectives were communicated and reviewed by the nursing teams and physicians. The nursing team was empowered to take on the project and able to sustain the project during the four months. Short-term wins were created by sharing the results of the project and by giving feedback and value to what they accomplished. Sharing the outcomes of the project will also serve as a basis for discussion on the use of the PHQ-9 screening tool for depression in other chronic illnesses. Finally, embedding the change in the culture will be done by sharing the results with the Nursing Leadership Council, Nursing Practice Council and physicians to gain support for sustaining the new approach to screening patients for depression throughout the organization.

Heart Disease and Depression Brochure Developed

This brochure was given to all patients when they were given the depression screening. In addition, this brochure was distributed via a kiosk in the local mall.
The goal of the project was to identify depression if it existed in HF patients through the use of a screening tool. A positive screen was called to the attending and a decision was made by the attending to either address the depression themselves or consult psychiatry. Twenty-seven percent of the patients screened (n = 130) over a 4 month period of time, screened positive for depression. Seven of the participants scored in the severe range meaning that they had thoughts of suicide. This would most likely not have been found without the screening tool.

A second goal of the project was to increase the knowledge of the nursing team and physician team about the role of depression and HF from a holistic prospective. The nursing team post-project survey indicated that nurses were happy to participate in the survey, it took less than 5 minutes of their time, and they have a better understanding of the role of depression in hospitalized HF patients. Physicians indicated that they appreciated the screening and the identification of depression in their patients. They coordinated with psychiatry for consultation.

The third goal was to identify a process that could be sustained throughout the organization to identify depression in hospitalized patients as part of a holistic approach to quality care.

A long term goal would be to increase the quality of life for HF patients by treating their depression and thus reduce the frequency of hospitalization.

Recognizing signs of mental health is not always easy. Brevity coupled with its construct and validity makes the Patient Health Questionnaire (PHQ-9), an attractive, dual purpose instrument for making diagnoses and assessing severity of depressive disorders. A cross-sectional study from 6,000 patients established its validity (Kroenke & Spitzer, 2002). A meta-analysis done by Manea, Gilbody and McMillian (2012) showed that depressive disorders are under recognized in medical settings despite major associated costs. They found the use of a short questionnaire may improve recognition in different medical settings.

Planning for the screening included discussion and education with the nursing teams from the two project units, meeting with the hospitalist group, meeting with cardiology and meeting with the psychiatric physicians. This was a collaborative effort involving the leadership team and the staff. The PHQ-9 tool was explained and the scoring tool was reviewed. The nurses verbalized understanding of the tool and how to score. The hospitalist group verbalized understanding that they may get calls requesting a psychiatric consult based on the score on the PHQ-9. The psychiatrist group stated they were aware that they may get some additional consults for HF patients that scored in the minor or major depression range.

The identified project group included patients admitted with HF to two telemetry units between Sept 16, 2013 and January 31, 2014. The nursing staff gave the patient the PHQ-9 on a clip board with a writing utensil, scored the tool and entered the results in the log book. The nurse could assist the patient if they were unable to complete independently. Patients with severe cognitive deficits were excluded. As a severity measure, the PHQ-9 score ranges from 0 to 27.
with each of the nine items scoring from zero (not at all) to three (nearly every day). Easy-to-
remember cut points of 5, 10, 15 and 20 represent the thresholds for mild, moderate, moderately
severe and severe depression, respectively. If a single screening cut point was to be chosen for
further action, a score of 10 or greater is recommended, with a sensitivity for major depression of
88%, a specificity of 88% and a positive likelihood ratio of 7.1. Scores less than 10 seldom occur
in individuals with major depression, whereas, scores of 15 or greater usually signify the
presence of major depression (Spitzer, Kroenke, & Williams, 2001).

If the patient scored 10 or greater, nursing would call the attending and inform them of the
results and discuss whether a psychiatric consult should be ordered. If a consult was ordered, the
psychiatrist would see the patient and discuss treatment options in coordination with the
attending. Scored tools were placed in the log book on each unit.

All HF patients received the pamphlet on depression and heart disease created by the project lead
in coordination with hospital marketing department. In addition, an educational packet was
prepared to give the nurse tools to discuss with their HF patient on illness, signs and symptoms,
weight charts and diet hints to decrease salt and fluid intake. The nurse managers and project
lead checked in frequently with the project units to answer questions, check supplies and collect
log sheets.

**Measurable Outcomes**

Data was analyzed using the SPSS program. Descriptive statistics resulted in 42.31% (n = 55) of
the 130 participants scoring 0-4 on the PHQ-9 screening tool indicating no symptoms of
depression. Participants screened positive for minimal symptoms of depression at the rate of
37.77% (n=40) scoring in 5-9 range. Those screened with minor symptoms of depression scored
10-14 totaling 12.31% (n=16). Ten percent screened positive for moderate major depression with
scores of 15-19 (n=13) and 4.62% (n=6) screened positive for severe major depression. Overall,
27% (n=35) of the total patients screened scored in the mild to major depression range with
scores 10 or greater. The scoring tool for PHQ-9 indicated to call the physician and discuss
scores ten or greater. The attending physicians often chose the option to discuss with the patient
themselves rather than order a psychiatric consult as documented by the nurses. However, four
psychiatric consults were ordered at one project hospital and two at the other hospital. The
patients who screened as severe depression all had psychiatric consults (n = 6).

The screening tool asks participants how difficult the problems they identified made it for them
to work, take care of things at home or get along with other people. Five participants did not
answer. 44.6% (n=58) stated it was somewhat difficult and 5.4% (n=7) stated very difficult.
Participants answered it was extremely difficult 6.2% (n= 8).

The findings support those of the American Heart Association’s position encouraging depression
screening and further suggest that it may be prudent to reassess symptoms of depression
routinely in HF patients to determine better appropriate medical management of these patients
who are at increased risk for adverse clinical outcomes and impaired quality of life (Lichtman,
Bigger, & Blumenthal, 2008). This project showed 27% of the participants screened positive for
depression in the mild to moderate range similar to the national estimates of the prevalence of
depression. Depression is under-recognized and undertreated in patients with HF, and clinicians can use screening tools to improve morbidity and mortality in these patients (Rustad et al., 2013). The results of this project suggest that the population of HF patients in the two study hospitals could benefit from a routine depression screening. Identification and treatment of depression could increase quality of life and possibly lead to increased compliance and reduction in readmissions in this population.

A post survey of the nursing staff (n= 25) revealed 90% of the nurses stated that the administering of the screening tool took less than 10 minutes. It also revealed that nursing knowledge increased in the area of depression and how it relates to HF (92%).

The above chart shows the scores on the PHQ-9 and whether the patients had a history of depression. In the score range of 0-4, 25% had a history of depression; score 5-9, 29% had a history of depression; in the mild depression range and a score of 10-14, only 9% had a prior history of depression; score 15-19 in the moderate range of depression, 29% had a history; and in the greater than 20 range or severe depression range, only 8% had a history of depression. The screening tool found a total of 24 patients that had no prior history of depression but scored in mild to severe range for depression. This is an opportunity for consultation, education, and referral for help with depression. Four patients in the severe depression range had signs of suicidal thoughts. This underscores the importance of screening and consultation.
The graph on the left shows scores of the PHQ-9 and the number of patients associated with each range. A total of 35 patients scored positive for depression.

Sustainability and Dissemination

John Kotter’s Change Model includes building on the change and embedding the change into the culture.

Once the results of the project showed that 27% of the patients scored positive for depression, it was important to share these results to obtain support for implementation. The results of the project showed that the population of HF patients in the two project hospitals could benefit from a routine depression screening. Screening is key in driving improvement considering only 19% of UCH patients were identified as having depression by coding in 2012. Identification and treatment of depression could increase quality of life and possibly lead to increased compliance and reduction in readmissions of this population.

Post-project presentations were completed with nursing leadership, the hospitalist group, psychiatry group, nursing units, and the medical executive committee of the hospital. The
medical executive committee approved the screening for depression in HF patients and gave approval to implement the screening process on the two telemetry floors previously involved in the project.

The screening tool is initially being adopted Fall 2014 for patients admitted to UCH with HF to two telemetry floors with expansion to other diagnoses throughout the organization. This will include patient populations that have a high degree of depression associated with their illness such as Chronic Obstructive Pulmonary Disease, Diabetes, and Stroke.

Depression often goes untreated and unrecognized in clinical practice. The implementation of a screening tool at UCH will increase the ability to recognize patients with depression and increase their access to mental health professionals. Maintenance of a close relationship and cooperation between cardiology and psychiatric consultants will impact positively the HF patients and provide a holistic plan of care.

In addition the American Psychiatric Nurses Association awarded a second place award in the practice category for a poster presentation of this project in October, 2014. They recognized the project for the innovative approach to bridging the gap between depression and heart disease.

Role of Collaboration and Leadership

Large scale change in an organization is unlikely to be successful without the support of the top leaders. The essential role of management and leadership in implementing change is to formulate an integrating vision and general strategy, build a coalition of supporters who endorse the strategy, then guide and coordinate the process by which the strategy will be implemented. In the case of this project, support was obtained from the top leadership and competent supporters within the project units were empowered to determine the best way to implement the new screening process. Resources were provided to implement the change successfully. By providing the education on depression screening to the leaders, physicians, and the nursing team up front, commitment to the screening was obtained in key positions and support was obtained.

Leadership support was demonstrated by giving positive feedback to the teams after the first month since people are more likely to undertake an activity if they perceive their efforts are likely to be successful. As the initial goals were accomplished, people experienced success and the project gained more momentum. The teams were excited to be part of the project, optimism was generated and leadership reinforced the importance of their work in the project.

Post project, a presentation was done to all the stakeholders on the results of the screening. This also generated enthusiasm for the implementation of the screening for depression throughout the organization. Leader influence was used to improve innovation and provide new opportunities for the staff to influence patient outcomes.

Physician buy-in was very important in the implementation of the screening for depression. The medical executive committee voted unanimously to adopt the screening in HF patients when the results of the project were shown. They voiced excitement over the collaboration of behavioral health with the medical staff and recognized the importance that identification of depression and
treatment could make in their patient’s quality of life. The establishment of this evidence-based care model would identify many individuals with behavioral disorders that have been previously undiagnosed.

**Innovation**

Patients with behavioral health conditions cost an estimated $525 billion in health care expenditures annually. Literature suggests than an estimated 5-10% of these total health care expenditures for those with behavioral conditions may be eliminated through effective integration of behavioral healthcare with medical care, particularly with older patients with depression (Milliman, 2014).

Compared with non-depressed HF patients, those with depression are more likely to have comorbid psychiatric disorder, severe medical illness and severe functional impairment. Depressed patients use more outpatient and inpatient medical services. Major depression is common in patients hospitalized with HF and is independently associated with a poor prognosis. The adverse effect of depression on prognosis seems to be independent of traditional risk factors. Recognition and clinical management of depression in this population is important. By being proactive at UCH, we hope to identify and offer treatment to those patients admitted with HF.

At Upper Chesapeake Health, no screening tool was in place to screen for depression on the medical floors. According to the American Heart Association, HF patients have a 24- 42% rate of depression so this diagnosis was chosen to be the first group to be screened. Previous to this, we were totally dependent on patient self-disclosure and even then, patients were not necessarily treated for depression or referred to outpatient. The implementation of screening for depression is the first time we have been proactive and successful in integrating behavioral health and medical in a chronically ill population. Psychiatry and medicine are collaborating to provide resources to the HF population and provide holistic integrated care. Our hope is that psychiatric consultation rates on this population will increase over the next year. This is the first step in integrating behavioral health in the healthcare system at UCH.

Furthermore, a focus on health status outcomes is consistent with the Institute of Medicine’s promotion of patient-centered care as one of the six key strategies to improving the quality of care in the U.S. Factors such as the aging population, increasing prevalence of HF and evidence that many older persons prefer quality of life to quantity of life further underscore the importance of evaluating patient-centered outcomes in this population. The results of this project suggest that patient-centered outcomes for HF outpatients may be improved through better recognition and treatment of depression.

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PATIENT HEALTH QUESTIONNAIRE (PHQ-9)

NAME ________________________________               DATE ________________________________

Over the last 2 weeks, how often have you been bothered by any of the following problems?  
(Please circle your answer)

<table>
<thead>
<tr>
<th></th>
<th>Not at All</th>
<th>Several Days</th>
<th>More Than Half the Days</th>
<th>Nearly Every Day</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. Little interest or pleasure in doing things</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>2. Feeling down, depressed or hopeless</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>3. Trouble falling or staying asleep</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>4. Feeling tired or having little energy</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>5. Poor appetite or overeating</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>6. Feeling bad about yourself - or that you are a failure or have let yourself/family down</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>7. Trouble concentrating on things like reading the newspaper or watching TV</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>8. Moving or speaking slowly that other people have noticed. Or being fidgety or restless/moving more than usual</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
<tr>
<td>9. Thoughts that you would be better off dead, or of hurting yourself in some way</td>
<td>0</td>
<td>1</td>
<td>2</td>
<td>3</td>
</tr>
</tbody>
</table>

Add Columns   __________ + __________ + __________  
Total   _________________

If you checked off any of the problems, how difficult have these problems made it for you to do your work, take care of things at home, or get along with other people?

Not difficult at all _____  Somewhat difficult _____  Very difficult _____  Extremely difficult _____

PHQ-9 is adapted from PRIME MD TODAY, developed by Drs. Robert L. Spitzer, Janet Williams, Kurt Kroenke, and colleagues, with an educational grant from the Pfizer. Copyright 1999. Used with permission from Pfizer, Inc.
Scoring Guidelines for PHQ-9

THE PATIENT HEALTH QUESTIONNAIRE (PHQ-9) SCORING

The PHQ-9 is a multipurpose instrument for screening, diagnosing, monitoring and measuring the severity of depression. It can be completed by the patient in minutes and rapidly scored by the clinician.

Use of the PHQ-9 for Treatment and Monitoring

Step 1: A depression diagnosis that warrants treatment or a treatment change, needs at least one of the first two questions endorsed as positive (“more than half the days” or “nearly every day”) in the past two weeks. In addition, the tenth question about difficulty at work or home or getting along with others should be answered at least “somewhat difficult”.

Step 2: Add the total points for each of the columns separately.

Step 3: Review the severity score using the following table:

<table>
<thead>
<tr>
<th>PHQ-9 Score</th>
<th>Provisional Diagnosis</th>
<th>Treatment Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>5-9</td>
<td>Minimal symptoms</td>
<td>Support, educate to call if worse</td>
</tr>
<tr>
<td>10-14</td>
<td>Minor depression</td>
<td>Support, watchful waiting</td>
</tr>
<tr>
<td></td>
<td>Dysthymia</td>
<td>Antidepressant or psychotherapy</td>
</tr>
<tr>
<td></td>
<td>Major depression, mild</td>
<td>Antidepressant or psychotherapy</td>
</tr>
<tr>
<td>15-19</td>
<td>Major depression, moderately severe</td>
<td>Antidepressant or psychotherapy</td>
</tr>
<tr>
<td>&gt; 20</td>
<td>Major depression, severe</td>
<td>Antidepressant or psychotherapy</td>
</tr>
</tbody>
</table>

Call MD and discuss psych consult
Post-CHF Study Nursing Survey

Please answer the following based on the following scale. Thank you.

Return to Pat Thompson when completed.

<table>
<thead>
<tr>
<th></th>
<th>Strongly Disagree</th>
<th>Disagree</th>
<th>Neutral</th>
<th>Agree</th>
<th>Strongly Agree</th>
</tr>
</thead>
<tbody>
<tr>
<td>1. The screening tool took less than 10 min of nursing time to give out and score.</td>
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<td>2. The CHF red patient education folder was helpful for patient teaching.</td>
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<td>3. I know more about the relationship between CHF and depression.</td>
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<tr>
<td>4. The brochure in the folder on heart disease and depression was useful for teaching.</td>
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<td>5. Depression screening should be done on other chronic illnesses.</td>
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<tr>
<td>6. I would like to know more about the relationship of depression and chronic illnesses.</td>
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</tbody>
</table>
References


