Significance of the Problem

- Coronary artery bypass graft (CABG) surgery is one of the most frequent and expensive cardiac surgical procedures in the US today (Price et al., 2013).
- Complications from CABG surgery are one of the top causes of 30-day hospital readmissions (Fasken et al., 2005).
- Hospital readmissions after CABG surgery are often preventable and add to health care costs (Fasken et al., 2001).
- In accordance with the Affordable Care Act, recent CMS legislation mandates penalties for hospitals with excess readmission rates (CMS 2013).

**PICOT**

In adult patients following CABG surgery, does the implementation and adherence to best practice methods, when compared to current practice methods, decrease 30-day readmission rates, over a three month period of time?

**Review of the Literature**

Terms: CABG, coronary artery bypass surgery, re-hospitalization, readmission, quality improvement, best practice, evidence-based practice, discharge planning, discharge education, and discharge care

Search Engines: EBSCO, Medline, CINAHL, ASP, JBI, Cochrane

Inclusion Criteria: 1999-2013, adult, English language, applicable to EBP

Exclusion Criteria: scored low on the CASP, foreign language, pediatric, made no recommendations to practice, CABG combined with other cardiac surgeries


**Synthesis of the Evidence**

- Use of cardio protective medications at discharge reduces readmissions (Arora et al. 2006).
- Most hospital readmissions have been found to take place in the first 14 days following CABG surgery (Hannan et al. 2011).
- Careful patient evaluation prior to discharge to assess transitional needs, may substantially reduce hospital readmissions (Marier et al. 2013).
- Individualizing standardized education for patients who have undergone CABG can allay fears and improve self-care (Fredericks, et al. 2009).

**Decision to Change Practice**

- Review of the evidence supports implementation and adherence to recommended best practice methods to decrease 30-day readmission rates following CABG surgery.
- Consistent use of cardio protective medications at discharge.
- Early postoperative surveillance.
- Comprehensive discharge planning.
- Use of standardized educational materials which are adapted to meet patient needs.

**Implementation**

- A convenience group of participants from a cardiothoracic surgery department in Southwestern Michigan
- Order sets were written to include: Cardio protective medications on admission, transfer, and discharge
- Case management referrals for discharge planning
- Standardized multimedia patient education to be given at intervals
- Patient education booklet revised and videos approved
- Included current EBP information
- A discharge check list & surveillance were developed
- Used best practices and secured follow-up within 14 days
- Staff and provider education sessions were held
- Introduced change, receive feedback, & monitor processes
- Frameworks used to drive the practice change: Kurt Lewin’s Three-Step Change Theory & Iowa Model

**Analysis**

Independent-samples t-test compared the mean scores of age and LOS of the pre- and post-intervention groups. A chi-square test of independence was calculated comparing the remainder of the group characteristics, interventions, and outcomes data.

**Evaluation**

<table>
<thead>
<tr>
<th>Characteristics of Group</th>
<th>Pre-intervention group</th>
<th>Post-intervention group</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age</td>
<td>Mean years 65.35, SD = 10.616</td>
<td>Mean years 64.47, SD = 9.310</td>
</tr>
<tr>
<td>Gender</td>
<td>Male = 51 Female = 14</td>
<td>Male = 52 Female = 10</td>
</tr>
<tr>
<td>Race</td>
<td>White = 61 Black = 1</td>
<td>White = 58 Black = 2</td>
</tr>
<tr>
<td>Hispanic</td>
<td>Hispanic = 2 Other = 1</td>
<td>Hispanic = 2</td>
</tr>
<tr>
<td>Length of stay</td>
<td>Mean days 7.55, SD = 5.492</td>
<td>Mean days 6.06, SD = 2.709</td>
</tr>
<tr>
<td>Type</td>
<td>Elective = 25 Urgent = 40</td>
<td>Elective = 25 Urgent = 35</td>
</tr>
<tr>
<td>Emergent</td>
<td>Emergent = 0</td>
<td>Emergent = 2</td>
</tr>
<tr>
<td>Smoker</td>
<td>Never = 20 Quit = 30 Current = 15</td>
<td>Never = 13 Quit = 32 Current = 17</td>
</tr>
<tr>
<td>Secondary diagnosis</td>
<td>HTN + DLP = 28</td>
<td>HTN + DLP = 26</td>
</tr>
<tr>
<td>Cardiac</td>
<td>HTN + DLP + DM = 28</td>
<td>HTN + DLP + DM = 26</td>
</tr>
<tr>
<td>Other</td>
<td>Other = 9</td>
<td>Other = 10</td>
</tr>
</tbody>
</table>

**Conclusions**

- 30-day readmissions were significantly decreased ($\chi^2(1) = 4.724, p = .000$) with implementation of best practice measures.
- Early postoperative surveillance identified complications and deferred readmissions.
- 85% of pre and post-intervention groups’ readmissions took place within 14 days after discharge.
- Patients verbalized being better prepared to go home when taught what to do and what to expect.

**Recommendations**

- All patients following CABG surgery should receive cardio protective medications at time of discharge from the hospital unless contraindicated.
- Patients receiving CABG surgery should be given standardized educational material, adapted to each patient’s needs, in intervals.
- Comprehensive discharge planning and early post-operative surveillance should be provided to all patients following CABG surgery.