Adopting Plan-Do-Check-Act (PDCA) on Early Ambulation after a Total Joint Replacement: It’s all about “BOB”

Areas of focus: Performance Improvement

**Statement:** Having knowledge of the improved patient outcomes resulting from early ambulation after total joint orthopedic procedures, a performance improvement project was initiated intended to result in 100% of patients BOB (Bottom Off Bed) on the day of surgery. In 2016 before the initiative had begun, it was noted that 62% of the total joints at HOI achieved BOB. A multidisciplinary collaboration between leadership, physical therapists, nurses, and support staff occurred. Original findings showed nausea as the number one reason for lack of success in BOB. Commonality in those cases demonstrated use of Astromorph. Decreasing the use of this intraoperative medication lead to the increase in the number of patients able to BOB. Results were tracked in monthly intervals, showing that scores of greater than 95% of patients achieved BOB within 12 hours post procedure.
Executive Summary

Early ambulation reduces the risk of postoperative complications after a total joint replacement. Hospitals with a successful early ambulation program in place are expected to have better patient outcomes. In a large orthopedic hospital, prolonged bedrest was found to be a common occurrence as some patients did not ambulate until a Physical Therapy assessment was complete. Patient complaints of pain and nausea were noticeable on postop day 1. This initiative aims to implement a change practice utilizing the Plan-Do-Check-Act method - identify issues, evaluate Staff awareness, and enhance the patient’s quality of care through strategic alliances. As a result, patients who did not receive early mobilization fell from 38% (June baseline data) to 1% (July to May), representing a 37% increase in patients who received “BOB”. Nausea complaints subsided but unclear if it is related to the 70% reduction of Astramorph use in the Operating Room (OR). Improvements in quality patient care were expected. The PDCA method was found to be an effective tool in the implementation of “BOB”. Staff awareness and commitment to higher quality patient care was met. Validation of patient’s chart guaranteed sustainability. Affirmed, early ambulation is critical to the patient’s overall success after a total joint replacement.
Relevance and background of the problem: “Dangling” is a classic nursing intervention (Morris, Benetti, Marro, & Rosenthal, 2010) that should not be a standard practice for primary joint surgical patients. Instead, caring for orthopedic primary joint patients postoperatively involving early mobility should be considered. Early ambulation after a surgical intervention reduces postoperative complications (Canavarro, n.d.). Benefits of early ambulation include an improved oxygenation and respiratory function reducing the chance of pneumonia (Pashikanti and Von, 2012), improved renal function decreasing risk of pulmonary embolism and deep vein thrombosis (Michota, 2009; Pashikanti and Von, 2012), the restoration of normal bowel movement (Rhodes, Loman, & Bultas, 2016) and the return of pre-hospital body functions (Resnick, B., et al., (2015)). Prolonged bed rest attributes to deconditioning and impairment of aerobic performance, cardiac insufficiency, coronary artery occlusion, shock, anemia, hemorrhage, thrombi or emboli (Canavarro, n.d.). As an orthopedic surgical acute care hospital, all total joint replacement patients were not ambulated until the initial Physical Therapy assessment. Retrospective data analyzed 34 total knee patient charts show 62% of patients were out of bed on day of surgery (59% with PT, 3% with Nursing). A multidisciplinary team approach was used to meet the objectives of early ambulation for all primary total joint replacement patients.

Description of the effort, including the scope, processes, strategies and tactics: The Plan-Do-Check-Act was used to guide the planning, implementation, evaluation and interventions of staff approach to early mobilization on every primary total joint replacement patient. A multidisciplinary team consisted of Quality Improvement, Physical Therapy and Nursing met to discuss the Performance Improvement initiative. The percentage of total patients ambulated early was estimated to create a hypothesis. Patients out of bed (OOB) on day of surgery (DOS) qualified as having early ambulation. An assessment of nurse staff awareness was conducted on why early mobilization was important and discovered no deficits were found. A definition of “Up” was defined and agreed upon as “Bottom off Bed” or “BOB”. A literature search was performed on the impact of early mobilization and prolonged bed rest. Retrospective data on 35 total knee joint replacement patients were used to determine the baseline data (BOB on DOS) since these patients are more difficult to get ambulate. Patients excluded from data extraction were frail fracture, anterior and posterior spine, bilateral joint replacement and revisions of hips and knees. Primary total hip replacement patient data was included in the monthly validation process to offer more robust data. The total number of primary total joint charts (“N”) analyzed in the first month was 51 and then increased to 100 in subsequent months. Outliers were patients who refused or displayed postop complications such as lethargy, dizziness, drowsiness, hemodynamic instability, or excessive pain and excluded from “N”. Physician orders for activity and positioning were reviewed to reflect unit goals. Nursing and staff support job descriptions required editing to include patient activity assessment skills. A hybrid role of PCA and PT aid was explored as a consideration to promote “BOB”. Nursing partnered with Anesthesiology to review cases where patients were unable to “BOB”. The dosage and drug of narcotic used in the OR was analyzed by the Chief Medical Officer - elect, Anesthesiologist. Anesthesia hypothesized postop nausea and vomiting was correlated to the wide use of Astramorph in the OR. The Physical Therapy Board on the inpatient unit included a column for “BOB” which was a visual tool for the RNs and Physical Therapy that patients were ready for “BOB”. A Team logo was selected to represent “BOB”. Staff were educated during meetings and shift huddles on
the new initiative. The departmental goal for “BOB” was 75% of all total joint replacement patients on day of surgery with a stretch goal of 80%.

**Results:** Initially, staff was unable to meet the departmental goal for “BOB”. The timeline set to “BOB” a patient was on day of surgery. Staff found “BOB” difficult to perform due to some patients arriving on the unit near the end of day shift or during night shift as there was less time to perform this task before midnight. The definition of “BOB” was redefined during the second month to “within 12 hours upon arrival to the floor”. Astramorph was identified as one common analgesic administered in the OR. After physician to physician education on postop nausea, a 70% decrease was seen in Astramorph use from 2016 to 2017 – a significant reduction. Through education and collaboration, the new goal was to reach 90% compliance with a 95% stretch goal of patients to receive BOB within 12 hours upon arrival to the floor. Validation of “BOB” proved that Staff could meet this goal as the stretch goal was achieved every month. Physician orders for activity and positioning were changed from “sit on side of bed” to “Out of Bed” and special instructions now read: “Stand at bedside day of surgery if appropriate by the Registered Nurse (RN)”. Changes to the order sets for activity and positioning were reviewed and approved by the Performance Improvement Committee. Ambulation, transfer, and gait training was added to the essential function of an RN/Patient Care Assistant (PCA) job description and revised copies of Staff job descriptions were distributed to the RN/PCAs. “BOB” was added as a goal to staff self-evaluation for Fiscal Year ending 2017.

**Significance of the Results:** Retrospective data collected on total hip and knee patients showed remarkable findings. Staff education to the new guidelines showed a positive culture change whereas 99% of patients were reported out of bed. Monthly validations showed that Staff were performing “BOB” on total primary joint replacement patients as well as patients outside the established baseline criteria. Staff were then re-educated on who qualified for “BOB” to ensure patient safety. Early mobilization indicated 1% of primary total joint replacements did not receive “BOB”. Staff and Physical Therapy reported fewer occurrences with post op nausea and dizziness. It was hypothesized that fewer patient complaints of nausea was correlated to a substantial decrease in Astramorph usage in the OR. Based on this information, further research will need to be conducted as these variables were not validated.

**Sustainability:** 1) periodic validation that BOB is documented in patient charts within 12 hours upon arrival to the unit; 2) follow-up with staff if documentation is missing; 3) continue discussions with staff through shift huddles, meetings, and staff mandatory meetings; and 4) recognize and reward staff for adherence to new process.

**Lessons Learned:** A multidisciplinary team from different healthcare professions is necessary when making changes to a current practice that affects the entire organization. The members collaborate together injecting their own proprietary concerns to make treatment recommendations that facilitate overall highest quality patient care.
References


