

# Carotid Endarterectomy LOS Pilot Study

## Organization and Team Members

**Beaumont Health System** is an 8 hospital system located in South East Michigan. This study involves two Beaumont hospitals: Royal Oak, a 1,070-bed hospital and Troy, a 458-bed hospital.

**The LOS Pilot Team:**

- Lisa Vergos, RN
- Fran Becker, RN
- Branka Stojkovic, RN
- Steven Rimar, MD
- Paul Bove, MD



## Problem Statement and Root Cause/Hypothesis

**Problem Statement**

The Troy and Royal Oak hospitals have comparable numbers of carotid endarterectomy (CEA) patients each month, but there are differences in length of stay (LOS).

- Post-surgical LOS is higher at Royal Oak than at Troy
- Royal Oaks has a limited number of progressive beds within the intensive care unit (ICU)
- Royal Oaks surgeons are reluctant to utilize progressive beds outside the ICU

**Root Cause/Hypothesis**

We can reduce LOS and improve patient outcomes and overall experience by changing surgical patient care practices.

## Goal and Key Metrics

**Goal**

Provide a high level of quality care that meets patient needs and reduces patient stays while maintaining good patient outcomes

**Key metrics**

- LOS for ICU stay vs. progressive or surgical bed stays
- Number of complications requiring readmissions
- Cost savings resulting from reduced ICU stays (ICU costs are double progressive bed costs)
- Blood pressure management
- Staff satisfaction

## Improvement Strategies

- Increase early patient mobilization, pulling of arterial lines, and D/C of Foley
- Present comparative pilot data on results from Troy to address the concerns of surgeons regarding transfer of patients from the ICU to the heart and vascular progressive beds outside of the ICU surgical floor
- Increase availability of progressive beds
- Education on post operative management of the CEA patient
- Survey clinician satisfaction

## Success Factors

**Organizational Change: Structured Reporting and Communications**

- Structured reporting of process and outcome measures from the local department level up through the Chief Nurse Officer and vascular physicians.
- Ensured transparency of patient outcomes data throughout the organization and expansion to other hospital units.

**Leadership, Learning and Collaboration from Nurses and Physicians**

## Conclusions

Changes in pre and post surgical management and care of CEA patients resulted in:

- Decreased LOS
- No increase in neurological events or return to the hospital
- Demonstrated cost savings to the patient and hospital
- Hospitals recognized the value in creating additional Surgical Progressive beds.

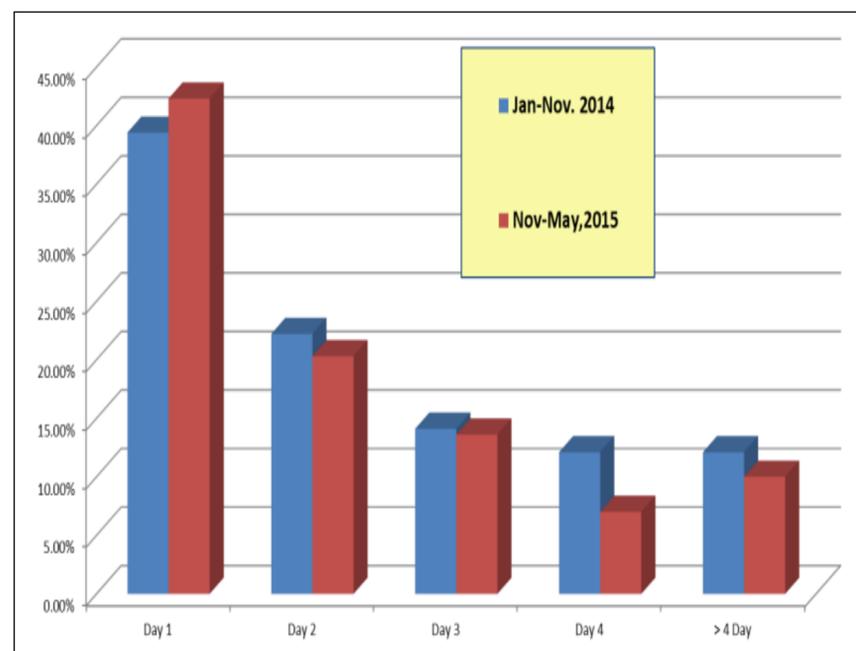
## Results

**Outcomes**

- Patient LOS reduced; no complications requiring readmission
- 8-10% improvement overall in reducing LOS
- Increased ROI – cost savings from reduced ICU stays
- Increased ICU/Post Acute Care Unit (PACU) bed availability
- Increased nursing satisfaction

Post-op Days	Number of cases	Overall Percentage
Day 1	25	42.3%
Day 2	12	20.3%
Day 3	8	13.6%
Day 4	4	7.0%
Day >4	10	16.9%

**Total Cases**  
November 2014—May 2015 = 59 cases  
40.9% cases stay between 2-4 days



LOS Before and After Pilot Study

**Additional benefits as a result of this pilot**

- Increased number of patient discharges from ICU within 1 day post op
- Increased number of patients going directly to progressive beds
- Expansion of progressive beds for all types of vascular surgeries
- Hospital support for creation of 9 more surgical progressive beds
- More nurses recertifying their ACLS on the progressive unit
- Decreased urinary retention from indwelling catheters that contributed to LOS
- Hospital now providing financial support for VQI participation

## Lessons Learned

**Preparation**

- Know hospital resources
- Gather accurate data
- Anticipate questions

**Connections and relationships for embracing change**

- Know who to go to for support
- Identify who will need support

**Stakeholder Buy-In**

- Consider all perspectives
- Demonstrate how change will benefit stakeholders' goals