

# IMPROVING CAPACITY TO SERVE SHVI CARDIO THORACIC PATIENTS



Atrium Health

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## BACKGROUND

Carolinas Medical Center (CMC) Main, in their mission to serve a growing population of the most complex patients, has focused on improving efficiency to gain more capacity in order to provide tertiary and quaternary care. Periop services are a critical part of that growing need and is under similar capacity constraints. Executive site leadership has decided to focus lean engagements to improve capacity and clinical efficiencies (cost/affordability) in this area to enable growth in volume, and its associated revenue. Within this very large functional area, Sanger Heart and Vascular Institute (SHVI), as an Atrium Health World Class Service Line is partnering for pilot development; anticipating subsequent spread of solutions appropriate within related services.

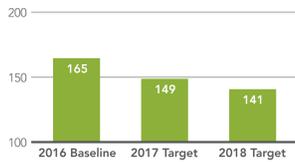
SHVI has defined world class sub-service lines including a complex aortic center, part of the vascular service line, and imbedded in this strategy is the goal to increase efficiency, quality outcomes, patient satisfaction, and contribution margin. While the anticipated growth of Vascular cases is marginal at a net increase of 15–20 for 2017, the efficiency gains are strategic towards needed capacity for Cardio Thoracic (expected net growth in 2017 of 120 surgical cases). Current practices within vascular services lack standardization across the continuum leading to different care between providers, resulting in inconsistent rounding and handoff communication leading to increased length of stay and decreased patient satisfaction. Additionally, there are inconsistencies with scheduling, post-operative care, post-operative discharge follow up, etc.

## STRATEGIC GOALS

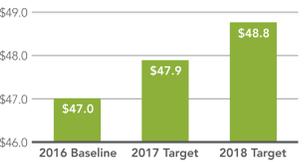
CMC has growing market demand to increase capacity for tertiary and quaternary care. The perioperative service line has been chosen as the area for capacity improvement over the next 4 years, and whereas SHVI Vascular services has been selected as the focus area where the capacity gained will be leveraged for growth by Cardio Thoracic services (anticipated growth potential in 2017 of 120 cases).

### I. GROWTH

Reduce Geometric Opportunity Days, 6T Vascular Patients

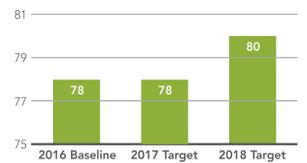


Increase Total Adjusted Net Revenue (\$M) of Vascular and Cardio Thoracic Cases



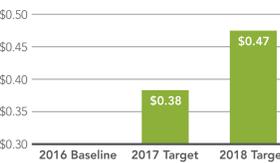
### II. PATIENT EXPERIENCE

Improve Overall Patient Satisfaction Rating on 6T (HCHAPS)



### III. EFFICIENCY

Total Variable Cost Reduction (\$M), Vascular Cases



## APPROACH TO IMPROVEMENT

- Strategy A3 for defining goals and related tactics across the continuum of patient care
- Separate Activity A3s for each area
- Executive Steering Team oversight
- Department Steering Teams for each area of focus
- Year long Lean engagements in 5 areas:
  - Clinic
  - Pre-Anesthesia screening
  - Cath Lab
  - OR
  - Vascular Inpatient Unit
- Lean Sensei allocation for each area to coach and develop the team on lean improvement methodology
- Core Team Member from each area for development and long-term benefit for imbedded continuous improvement capability
- Weekly Senior Leader Obeya for reporting Target, Actual, Lessons Learned, and Next Steps
- Status A3 for use of reporting, on 1 page, status of tactical measures/work status, and strategic outcome performance
- Use of Gate Charts for tracking progress of countermeasures and their benefit towards achieving department level metrics
- Mid-year Hoshin review to evaluate the tactical activity for continued focus or possible adjustment

## RATIONALE

- Length of Stay improvement is critical to reducing Opportunity Days which is needed for growth objectives.
- Reducing variation is necessary for improving Capacity and Variable Cost. Creation of Care Plans are required as a standard.
- Improved Nursing Communication is very important to improving Overall Likelihood to Recommend.
- In order to meet our strategic goals this year, we must:
  - 1 Increase Vascular surgical case efficiency to improve related Variable Cost and to create capacity to support incremental growth for Cardio Thoracic cases. Efficiency implies amongst other opportunities, a decrease in variation of Care Pathways and appropriate utilization of Cath Lab vs. OR for Vascular Cases (therefore volume will be reported for both).
  - 2 Improve Length of Stay (LOS) and Readmissions; working on 6T for Vascular Patients, but also improving appropriate STICU utilization (Pre-Op, In-Take, OR), to improve Vascular Variable Cost, and to reduce Opportunity Days as capacity for Cardio Thoracic growth.
  - 3 Improve Patient Satisfaction to improve Overall Rating (HCHAPS).
  - 4 Grow "Roots" through Teammate Training regarding lean topics, and develop "Trunk" through Leader Engagement of Leader Standard Work as a key opportunity for teammate engagement, execution, and sustainability.

Goals (1 Year)	Activity Location	Baseline 2016	Target 2017	Initiative Owner	J	F	M	A	M	J	J	A	S	O	N	D
I.1.a. Reduce Vascular Observed Geometric Days Per Case on 6T	Vascular Clinic, Pre-Anesthesia Screening, Surgery Intake, 6T	3.34	3.03	Dr. Arko Cindy Brenton												
I.1.b. Reduce Vascular Unplanned Readmissions on 6T	Vascular Clinic	62	56	Dr. Arko Lynne Davis Debbie Denton												
I.2.a. Increase Total (OR & Cath Lab) Vascular Case Volume	Scheduling (OR, Cath Lab, Clinic) (CMC, Pineville, etc)	540	552	Dr. Arko Debbie Denton												
I.2.b. Increase Cardio Thoracic Case Volume	Scheduling (Or, Cath Lab, Clinic)	663	675	Dr. McGinn Debbie Denton												
II.2.a. Improve Nursing & Provider Communications with all Patients on 6T	6T	83.1	83.1	Dr. Arko Lynne Davis												
III.1.b. Reduce Vascular Variable Cost per Episode	OR 6T	\$17,289	\$16,597	Dr. Arko Debbie Denton Crecia Keller												
IV.1.a. Teammate Completion of Lean Training	All	0	110	Jane Szabaga												
IV.1.b. Leader Engagement in Leader Standard Work	All	0	.9/n	Jamie Hartz												

## SIGNIFICANT CHANGES

- Revised clinic appointment templates based on increased efficiency of the clinic care team through load balancing and standardized work, this reduced visit cycle time therefore provided the capacity to increase new referral visits; baseline of 1203, target of 1644, to an actual of 2243.
- Surgical site cleaning in 3-phases (Out Patient Hibidens Scrub, Day of Surgery CHG Wipes, and OR Alcohol Prep) to reduce surgery site infection, and introduced hospital follow-up clinic appointment timely to baseline of post-discharge readmission timeframe, therefore reducing unplanned readmissions; baseline of 62, target of 56, to an actual of 50.
- Implemented best timing for completion of Pre-Anesthesia screening, therefore providing opportunity for issues to be resolved timely to day of surgery.
- Moved OR cases to Cath Lab where appropriate to open up capacity for higher acuity patients.
- By reducing unplanned readmissions and moving cases from OR to Cath Lab, as well as other cost reduction opportunities, Variable Cost was reduced from; baseline of \$17289, target of \$16597, to an actual of \$16,025.

Goal	Target Condition	Actual	Rating	Comments
A. Reduce Geometric Opportunity Days (6T) Baseline: 165 Goal: 149	<149	110	B	Actuals reported ytd thru November. Opportunity continues to exist for improving LOS as noted below regarding Standard TEVAR and EVAR Care Plan implementation. Opportunity continues with requested physician involvement in both Steering Team Meetings and ADOD Huddles. Credit taken in November Gate Chart for 9 fewer readmissions resulting in 32 opportunity days.
B. Increase Total Adj. Net Rev., Vasc & C.T. Baseline: \$47.0M Goal: \$47.9M	\$47.9M	\$54.6M	B	Actuals reported ytd thru November. Reported Green against final month of Engagement target of \$44M. Net Rev. continues strong and will exceed goal based on developed capacity and market demand for CT and overall for Vasc. across the service line. While Vasc. volume, (by subset of DRGs for this Strategy) is varying around target, it is benefiting from increased capacity developed in the practice. Actual demand for new patient consults in the practice continues well above goal, and benefits greatly from the developed increase in capacity; currently at 1427 and 1169 (ytd November) for Vasc. and CT respectively.
C. Improve Overall Pt. Satisfaction (all patients 6T) Baseline: 78.0 Goal: 78.0	78.0%	76.9%	R	Actual reported through December. While both Nursing and Provider Communication performance are relatively strong, Provider scores are consistently stronger by 7.1 points, average as measured during the months of October and November. Surveys continue weekly and are used to determine gaps as areas of opportunity.
D. Decrease Ttl. Var. Cost, Vascular Cases Baseline: \$0M Goal: \$0.38M	\$0.38M	\$0.48M (\$0.72M)	B	Actuals reported ytd thru November. Performance reported is normalized to baseline to remove system recosting and case mix adjustments. Reported performance in parenthesis includes recosted data. Relating to this recosting, 2 separate adjustments were made in September and October, which in part, included reporting policy changes moving some fixed costs into variable. The recosting negatively impacts normalized performance by approximately 13%.

Key:  
 1. 'B' indicates meeting Stretch Goal  
 2. 'R' indicates not meeting Goal

## LESSONS LEARNED

- The performance reporting lagged a couple of months and therefore didn't provide real time outcome data.
- Would choose to report on all cases within the service line to enable reporting on a closer interval, while still using DRGs for consideration of specific plans of care.
- The financial system allocates overheads twice a year (re-costing), and is retroactive 6 months.
- It's important to normalize some data such as Variable Cost in order to gain insight on organic improvement.
- Connecting the continuum of patient care leverages opportunity to drive strategic improvement.