

VQI COPI Report

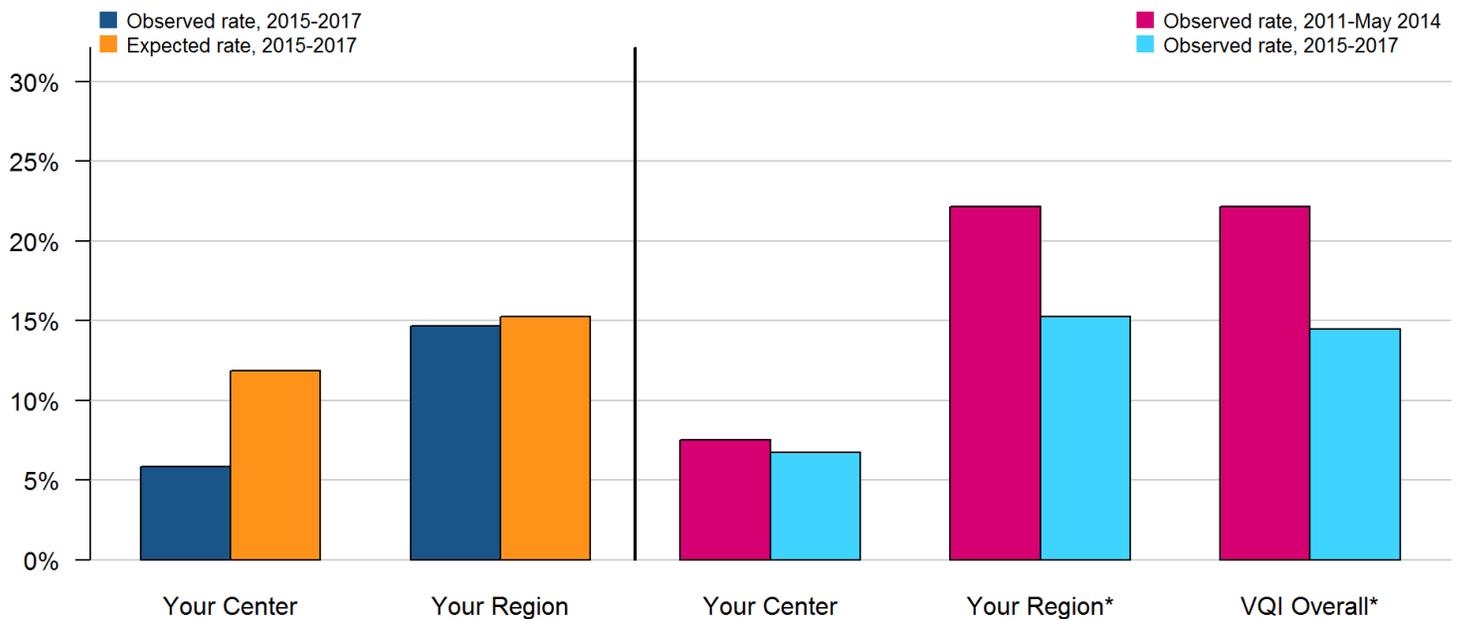
Elective EVAR: Percentage of Patients with Length of Stay > 2 Days (2011-May 2014 compared to 2015-2017)

Excludes patients with symptomatic and ruptured EVAR, patients with prior aortic surgery, patients who died in the hospital with LOS<3 days, patients who were not admitted the same day of the procedure and patients who had surgery on the weekend.

Note: In all tables and graphics, regional data are not shown for regions with <3 centers participating in the registry.

In our continuing effort to improve vascular health, the Vascular Quality Initiative (VQI) is pleased to provide you with this Center Opportunity for Improvement (COPI) report concerning length of stay (LOS) after elective endovascular aneurysm repair (EVAR). The SVS PSO previously issued a COPI report on LOS after elective EVAR in 2014. This report compares rates of LOS>2 days before (January 2011-May 2014) and since (2015-2017) the original report was issued.

Percentage of Elective EVAR Patients with LOS>2 days



2015-2017 observed compared to expected

2015-2017 rates compared to 2011-May 2014 rates

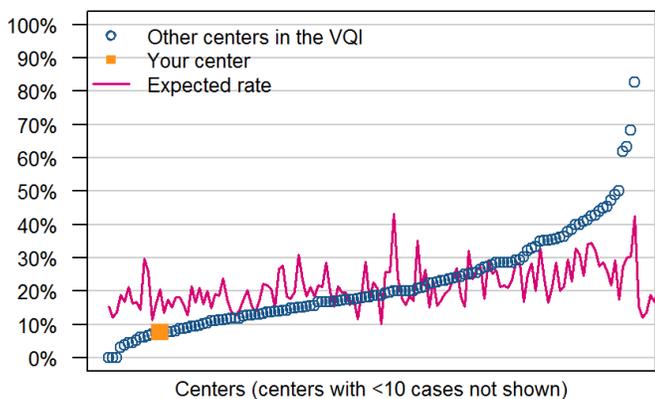
“*” indicates the two rates are significantly different. The observed rates on the left are among only patients with complete data for the risk model, while observed rates on the right are among all patients.

SUMMARY

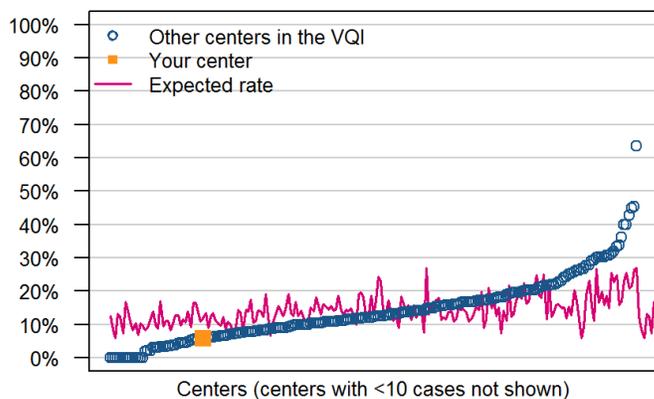
Most patients who undergo elective EVAR were discharged by the second post-operative day, but across all VQI centers in 2017, 13% of patients undergoing elective EVAR and admitted the same day of the procedure have post-operative LOS > 2 days. Since EVAR is one of the most frequently performed vascular operations, this can have significant impact.

This report compares the rate of LOS>2 days (post-procedure to discharge) from 2015 to 2017 to the rate from January 2011 to May 2014, the time frame studied in the original COPI report concerning elective EVAR LOS that was issued in 2014. Graphics A and B below show the variation in the percentage of patients with LOS > 2 days after elective EVAR across VQI centers in these two time periods. The OBSERVED percentage of patients with LOS > 2 days is shown for each center (blue dots, sorted from low to high), with your center indicated by a yellow square. As you can see, some centers have very few patients who stay > 2 days, while in other centers, nearly all patients stay > 2 days after elective EVAR. The EXPECTED percentage of patients with LOS > 2 days is shown by the red line, which corrects for differences in patients between centers in factors that influence LOS. Many of these factors are listed in the COPI table presented immediately after these graphics. We also corrected for other factors – such as race and BMI, family history of AAA, preop meds, and maximum AAA diameter – that are not listed in the table because their effects on LOS were found to be minimal.

A: Rate of LOS>2 days by Center (2011-May 2014)



B: Rate of LOS>2 days by Center (2015-2017)



To determine which factors are associated with prolonged LOS, we performed multivariate logistic regression regarding patient characteristics, procedure details and postop complications. Because the EVAR registry was revised in December 2014, we used data from 2015 to 2017 to create this model, which updates the model presented in the original 2014 COPI report. The Center Opportunity Profile for Improvement (COPI) report below lists each risk factor that contributes to LOS > 2 days after elective EVAR and compares your center with all VQI centers.

The COPI report lists risk factors independently associated with LOS > 2 days, along with the percentage of patients at your center with that risk factor. Factors are highlighted in **red** if your center was above the 75th percentile for all centers (indicating a **potential opportunity to reduce LOS**) and in **green** if your center was below the 25th percentile (indicating that **your center has more patients with a lower risk of having a longer LOS**). The report also contains the odds ratio (OR) for each risk factor. This shows how much each risk factor contributes to LOS > 2 days. An OR of 2 means patients with this risk factor have twice the odds of LOS > 2 days compared to a risk factor with an OR of 1. Thus, ORs are a way to rank the risk factor's impact on longer LOS (larger ORs have a larger impact).

Patient characteristics that increase LOS can usually not be modified, but can help direct earlier efforts at discharge planning. Procedure details are potentially modifiable and represent opportunities to reduce LOS. Post-operative complications have a very large influence on LOS, and represent the greatest opportunity for improvement.

If you would like further information or have questions about your report, contact Dan Neal, VQI Director of Analytics, at dneal@svspsso.org.

Jens Jorgensen, SVS PSO Medical Director

Salvatore Scali, MD, EVAR Registry Committee Chair

Your Center Opportunity Profile for Improvement (COPI)

Legend: Green: <= 25 percentile Red: >= 75 percentile

Excludes patients with symptomatic and ruptured EVAR, patients with prior aortic surgery, patients who died in the hospital within 2 days, patients who were not admitted the same day of the procedure, and patients who had surgery on the weekend.

Detailed Results: LOS>2 Days After Elective EVAR, 2011-May 2014 vs. 2015-2017

The tables below show your center's average and median LOS after elective EVAR in the two time periods and compare your center's statistics with those of other centers in your region and in VQI. In addition, your center's observed and expected percentage of patients with LOS > 2 days are shown, with a statistical calculation of whether this percentage is lower or higher than expected based on the characteristics of patients in your center.

Detailed results for 2011-May 2014

The tables below show the number EVAR procedures meeting the inclusion criteria that were in the VQI as of January 31, 2018, and the percentage of those cases in which the patient's length of stay was greater than 2 days after surgery.

	Your Center	Your Region	VQI Overall
Number of procedures meeting inclusion criteria	186	2055	8724
Number of procedures included in analysis*	183	1997	8045
Mean (SD) [Median] post-op length of stay	1.6 (3.2) [1]	2.2 (3) [2]	2.3 (3.7) [1]
Observed percentage of cases with LOS>2 days	7.7%	22.3%	21.9%
Expected percentage of cases with LOS>2 days	20.6%	23.8%	NA
P-value for O/E comparison	<.01	0.11	NA

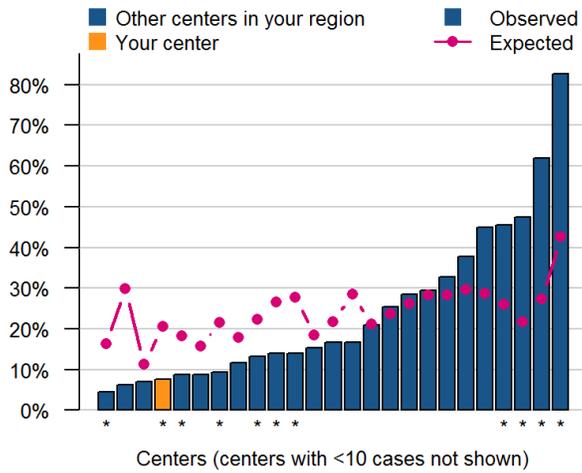
*Because the multivariate model presented in the COP1 table is used to calculate expected rates of LOS>2 days, any patients missing data on any factors in that model must be excluded from the analysis.

Detailed results for 2015-2017

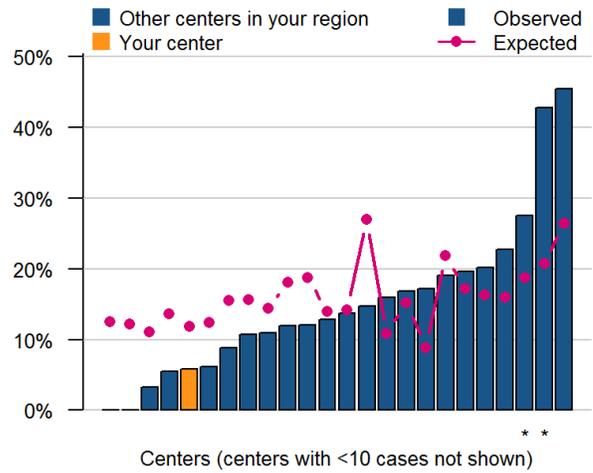
	Your Center	Your Region	VQI Overall
Number of procedures meeting inclusion criteria	104	1568	14444
Number of procedures included in analysis*	103	1491	13754
Mean (SD) [Median] post-op length of stay	1.5 (2.1) [1]	2.2 (8.8) [1]	1.9 (4.6) [1]
Observed percentage of cases with LOS>2 days	5.8%	14.7%	14.4%
Expected percentage of cases with LOS>2 days	11.9%	15.3%	NA
P-value for O/E comparison	0.07	0.56	NA
P-value for comparison of 2011-May 2014 vs. 2015-2017 observed rates		<.01	<.01

Graphics C and D show the center-to-center variation in LOS>2 days across your region before and since the publication of the original COPI report in 2014. The bars give the observed rate for each center, which should be compared to the expected rate for each center, shown by the red dots.

C: Rate of LOS>2 days in Your Region (2011-May 2014)



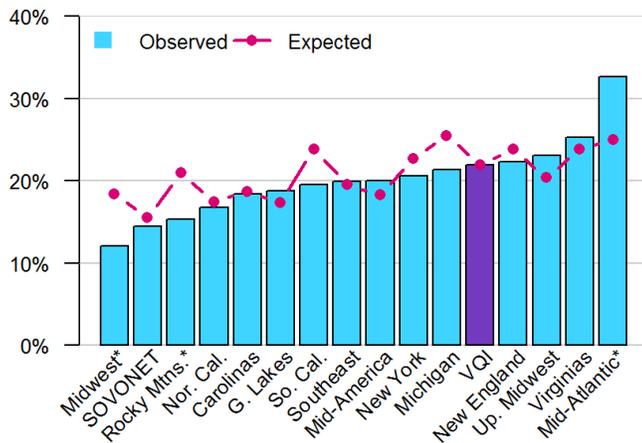
D: Rate of LOS>2 days in Your Region (2015-2017)



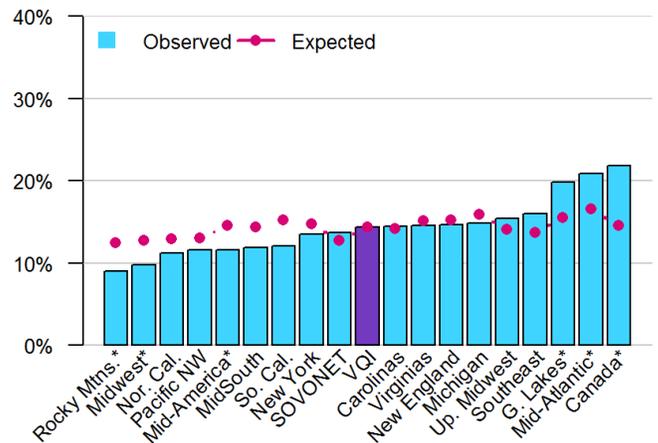
“*” indicates center’s observed rate differs significantly from its expected rate.

Graphics E and F show the region-to-region variation in LOS>2 days across VQI before and since the publication of the original COPI report in 2014. The bars give the observed rate for each region, which should be compared to the expected rate for each region, shown by the red dots.

E: Rate of LOS>2 days by Region (2011-May 2014)



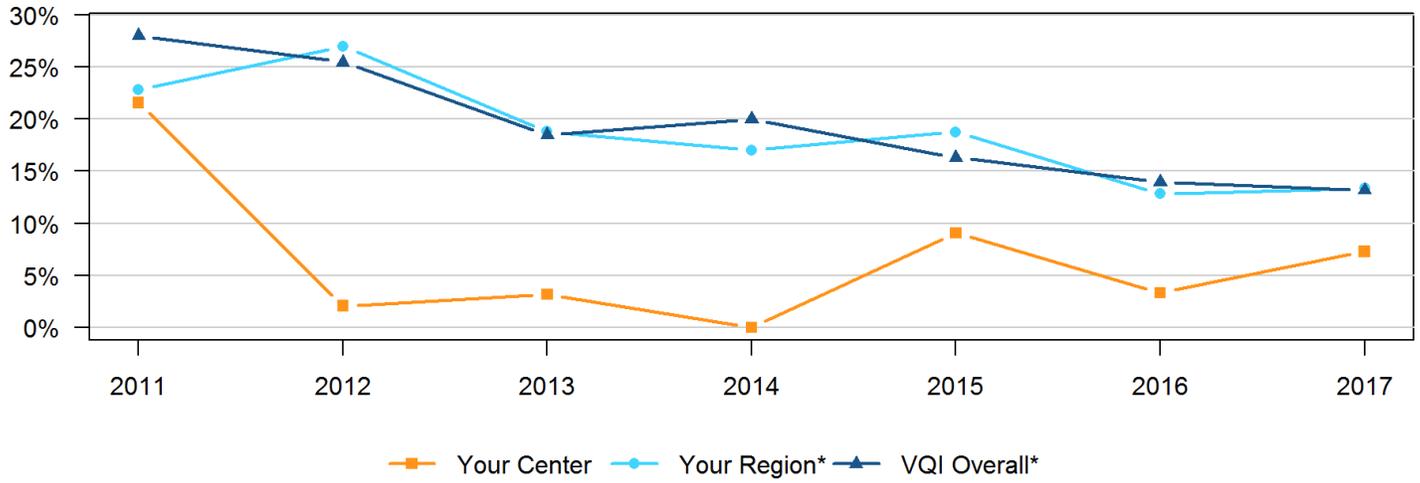
F: Rate of LOS>2 days by Region (2015-2017)



“Others” indicates centers that do not belong to a regional group. *Indicates region’s rate is significantly different (p<.05) from VQI rate.

Graphic G below shows the percentage of patients with LOS > 2 days after elective EVAR in your center over time, compared with centers in your region and all VQI centers. As you can see, the overall VQI rate has been declining steadily since 2011, from 28% to 13%, which is a statistically significant trend over time, as indicated by the asterisk in the graphic legend (“VQI Overall*”). If an asterisk appears in the legend for your center (“Your Center*”), it indicates that your center’s trend over time is also statistically significant. If there is no asterisk, it indicates that your center’s rate has not changed significantly over time.

G: Rate of Elective EVAR Patients With LOS>2 days by Year



* indicates a significant trend over time.