

A grayscale, motion-blurred photograph of a hospital hallway. Two medical professionals, likely nurses, are walking towards the camera. They are wearing white scrubs, white lab coats, and white surgical caps. The hallway has white walls with a grid pattern and recessed ceiling lights. The image is partially obscured by a red diagonal banner at the bottom.

SVS | **VQI**
In collaboration with NCDR®

2023 ANNUAL REPORT

TABLE OF CONTENTS

| | | |
|-----|---|-------|
| 1. | Executive Summary: Big Data and The Value of Participation in the SVS VQI | 2 |
| 2. | Introduction to the SVS VQI | 3 |
| 3. | A Year of Milestones | 4 |
| 4. | SVS VQI Members Profile | 5 |
| 5. | SVS VQI Trainee Program | 6 |
| 6. | Data Quality Dashboards | 7-8 |
| 7. | Regional Quality Groups | 9 |
| 8. | Quality Improvement PROJECTS: Learning from the Data | 10 |
| 9. | National Quality Improvement Initiatives | 11-12 |
| 10. | SVS PSO Data Integrity Audits | 13 |
| 11. | SVS VQI Cardiac Risk Index (VQI CRI) | 13 |
| 12. | SVS VQI Data Analysis | 14 |
| 13. | SVS Guidelines and the SVS VQI | 14 |
| 14. | A New VQI.org Experience | 15 |
| 15. | SVS VQI Communications | 15 |
| 16. | Collaboration with Societies | 16-17 |
| 17. | Corporate Support | 17 |
| 18. | Using SVS VQI Data for Collaborative Projects with FDA & Industry | 18-19 |
| 19. | Registry Assessment of Peripheral Interventional Devices (RAPID) Update | 19 |
| 20. | International Consortium of Vascular Registries (ICVR) Update | 20 |
| 21. | The SVS VQI and Compliance with the EUMDR | 20 |
| 22. | Technology & Registry Developments | 21 |
| 23. | Future Developments | 21 |

APPENDIX

| | | |
|----|---|-------|
| A. | Participating Sites | 23-25 |
| B. | SVS Patient Safety Organization Structure | 26 |
| C. | FIVOS Technology Partner | 26 |

1. EXECUTIVE SUMMARY - THE VALUE OF PARTICIPATION IN THE SOCIETY FOR VASCULAR SURGERY (SVS) VASCULAR QUALITY INITIATIVE (VQI)

BIG DATA

According to Oxford languages, “big data are extremely large data sets that may be analyzed computationally to reveal patterns, trends, and associations, especially relating to human behavior and interactions.”

The VQI database clearly meets this definition. The VQI registry contains over 1,000,000 procedures that have been entered with over 100 million exposure variables and greater than 50 million outcome variables for analysis. That is indeed a robust source of high quality data for analysis. VQI data has been the source of > 600 peer reviewed scientific publications. VQI data analysis has led to changes in clinical practice that has improved the care of vascular patients - appropriate prescription of preoperative and postoperative medications, patching for carotid endarterectomy, protamine reversal of heparin, and others. Compliance with these measures has led to thousands of lives saved, strokes prevented, and limbs preserved. These findings would not have been possible in a smaller data set and required the large volume and sophisticated analytic methodology to become identifiable. VQI data has helped us understand and resolve the Paclitaxel issue affirming the safety of drug-coated balloons and drug-eluting stents. VQI data has helped us understand the impact of COVID-19. In 2021, the FDA convened a 2 day panel on endovascular AAA graft surveillance and type III endoleaks. Again, VQI data made a significant contribution to the discussion which is still ongoing. Tip O’Neill once said “all politics is local”. At VQI, we feel that all patient care improvement is local. Every provider and center that participates in VQI receives quarterly dashboards and regular performance reports to facilitate meaningful quality assessment and focus quality improvement initiatives. Biannual regional meetings allow physicians, nurses, data managers, quality officers, and others to meet, share information and ideas, and learn from each other in a positive and supportive environment. Members have used SVS VQI data to significantly improve the delivery of vascular care at a local and national level thereby reducing complications and expenses.

The VQI registries continue to have strong growth in participation by new centers and providers. SVS VQI’s 14 registries contain demographic, clinical, procedural and outcomes data from more than 1,000 centers that have entered more than 1,000,000 vascular procedures performed nationwide and in Canada, Puerto Rico and Singapore. Each record includes information from the patient’s initial treatment and one-year follow-up.

Over 14,000 new procedures are added monthly. The wealth of data in the registry allows centers and providers to measure their own performance and compare it to regional and national benchmarks.

Investigators have used SVS VQI data for risk stratification, outcomes analysis, quality improvement, defining best clinical practices, comparative effectiveness research and reducing resource utilization. This work has resulted in more than 600 scientific publications in peer-reviewed journals since 2011. SVS VQI membership also facilitates participation in clinical trials and other medical device evaluation projects.

The SVS VQI collaborates with multiple other organizations, including the American College of Cardiology (ACC), American Venous Forum (AVF), American Heart Association (AHA), Society for Vascular Medicine (SVM), Vascular Access Society of the Americas (VASA), Society for Vascular Ultrasound (SVU), governmental regulatory agencies, device manufacturers, and payers. The Registry Assessment of Peripheral Interventional Devices (RAPID) is a public/private partnership which uses the strength of different societies (SVS, ACC, and SIR) and their registries to enhance device evaluation and to develop objective performance criteria for the endovascular treatment of lower-extremity arterial occlusive disease. SVS VQI also works with industry to provide clinically detailed data for device performance, post-market surveillance, and label expansion. SVS VQI has partnered with vascular registries from Europe and Asia to form the International Consortium of Vascular Registries (ICVR) to bring a global perspective to improving vascular care and device evaluation.



Dr. Jens Jorgensen
SVS PSO Medical Director

2. INTRODUCTION TO THE SVS VQI

The SVS VQI is a collaboration of the SVS Patient Safety Organization (PSO), 18 regional quality improvement groups, and Fivos, its commercial technology partner. The mission of SVS VQI is to improve the quality, safety, effectiveness, and cost of vascular healthcare.

The SVS PSO is a wholly owned subsidiary of the Society for Vascular Surgery, with headquarters in Rosemont, IL. The SVS PSO governs all functions of SVS VQI, including the specification of data elements captured in each registry, the standard reports made available to regional groups, member hospitals and physicians, and SVS VQI national quality improvement projects.

The SVS PSO is supported by over 250 physician volunteers who dedicate their time and effort in support of the SVS VQI mission. These physicians provide content expertise, advice, clinical support to all the registries and data analyses and ad-hoc support in areas such as industry partnerships and communications. In addition, each center and region have lead physicians and regional medical directors to provide guidance, identify best practices and develop regional initiatives.

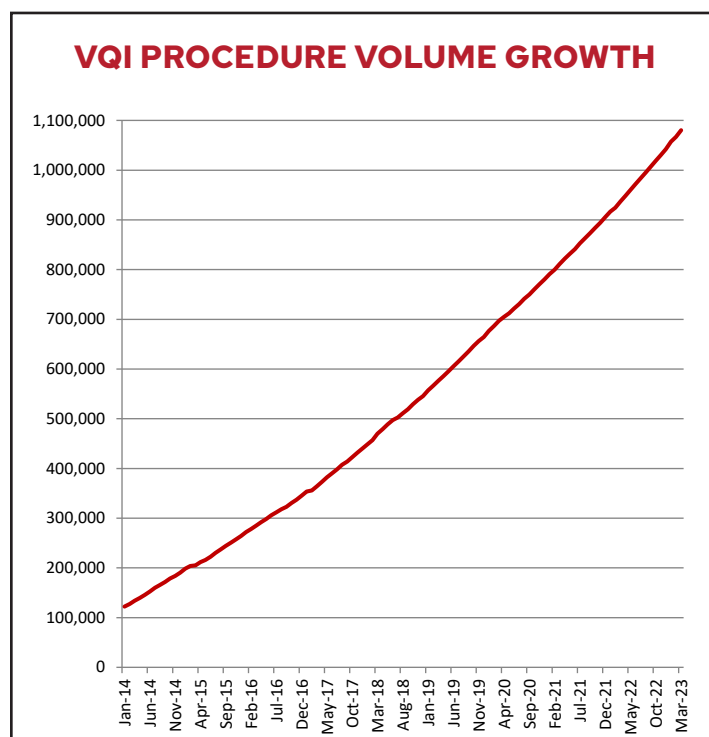
The SVS PSO operations are funded by annual registry subscription fees from participating hospitals or physician groups. Enhancements, upgrades and new projects are funded by contributions from corporate supporters.



THE SVS VQI REGISTRIES

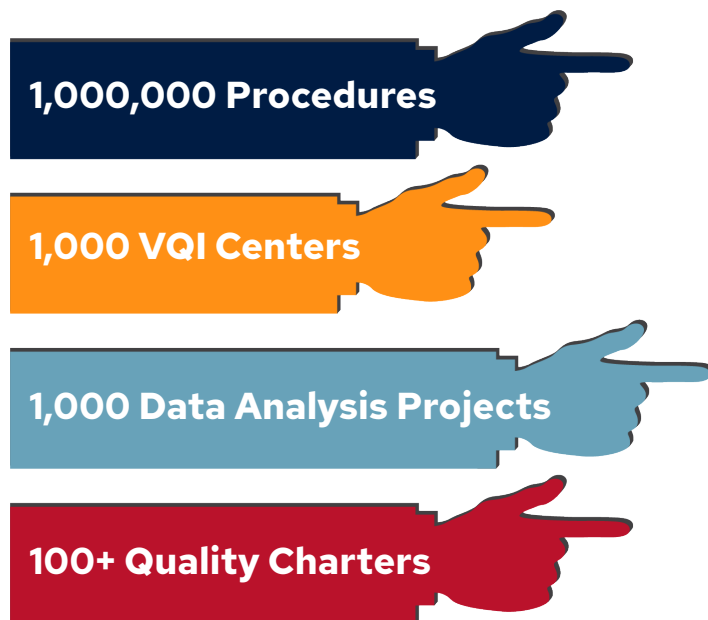
As of May 1, 2023, there are 14 SVS VQI registries that contain 1,092,096 vascular procedures. From April 1, 2022 through May 1, 2023, there were over 155,000 procedures added to the registries.

| Total Procedures Captured as of 5/1/2023 | | 1,092,096 |
|--|--|-----------|
| Peripheral Vascular Intervention | | 377,562 |
| Carotid Endarterectomy | | 193,672 |
| Carotid Artery Stent | | 98,364 |
| Infra-Inguinal Bypass | | 81,662 |
| Endovascular AAA Repair | | 80,821 |
| Hemodialysis Access | | 79,936 |
| Varicose Vein | | 61,706 |
| Thoracic and Complex EVAR | | 29,084 |
| Lower Extremity Amputations | | 28,598 |
| Supra-Inguinal Bypass | | 26,070 |
| IVC Filter | | 18,357 |
| Open AAA Repair | | 17,850 |
| Vascular Medicine Consult | | 1,236 |
| Venous Stent | | 178 |



3. A YEAR OF MILESTONES

It has been a year of numbers! As we celebrate our 12th Anniversary, SVS VQI has a lot to be proud of. In the past year, the VQI reached 1,000,000 procedures and 1,000 centers, surpassed the 1,000 mark for Data Analysis Projects. We also had over 100 Quality Charters submitted since last year. We applaud each of the VQI participating centers and individuals and their part of helping the registry achieve these milestones.



SVS | VQI

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POTENTIAL BENEFITS OF VQI FOR KEY STAKEHOLDERS

For Patients

- Improve care based on SVS VQI data and quality initiatives
- Use best practices to reduce length of stay
- Improve long-term outcomes through emphasis on follow-up and secondary prevention

For Physicians/Providers

- Adopt best practices through SVS VQI data analysis and compliance with guidelines
- Improve care through quality initiatives and charters
- Monitor performance by comparison with regional and national benchmarks
- Improve patient selection using SVS VQI risk assessment calculators

For Hospitals and Quality Officers

- Improve care by quality initiatives and projects
- Regional and national benchmarks for QA and QI efforts
- Reduce expenses by addressing resource utilization and length of stay

For Policymakers

- Better data to inform decision making on policy development
- Monitor safety and efficacy using real world evidence
- Work collaboratively with the SVS to develop quality measures

For Payers

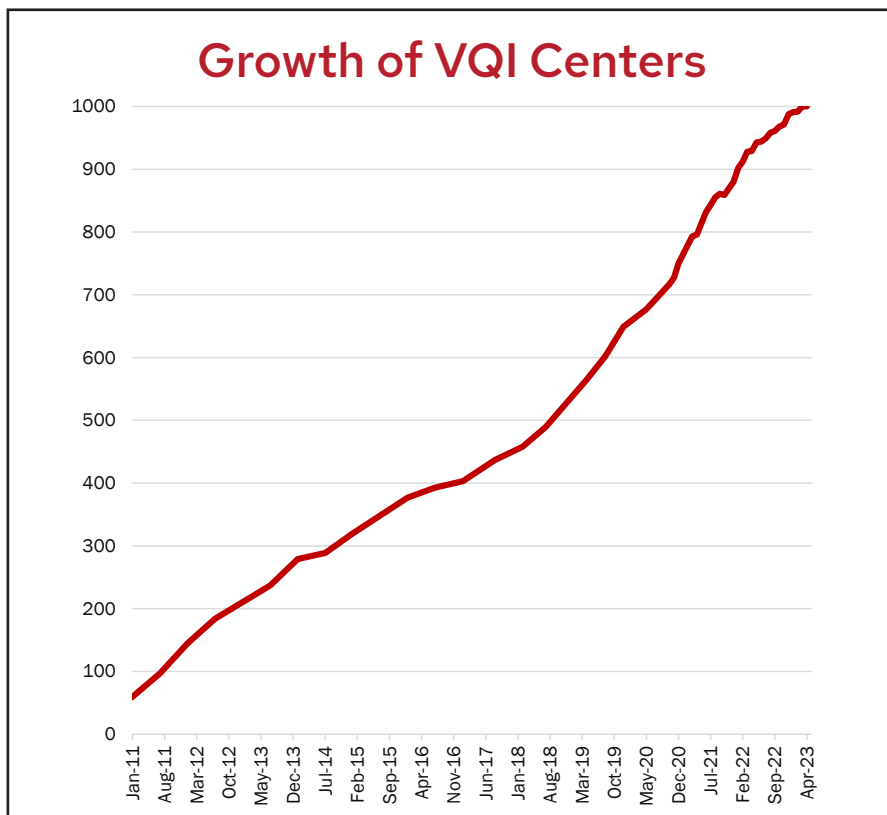
- Adopt best practices to provide better care and reduce complications and expenses
- Inform population health approaches through use of comparative data
- Reduce expenses due to decreased length of stay and resource utilization

For Industry

- Enhance efficiency for label expansion using registry data
- Utilize registry-based trials for pre-market approval and post-market surveillance
- High quality, large scale, real world data for evaluation of device performance

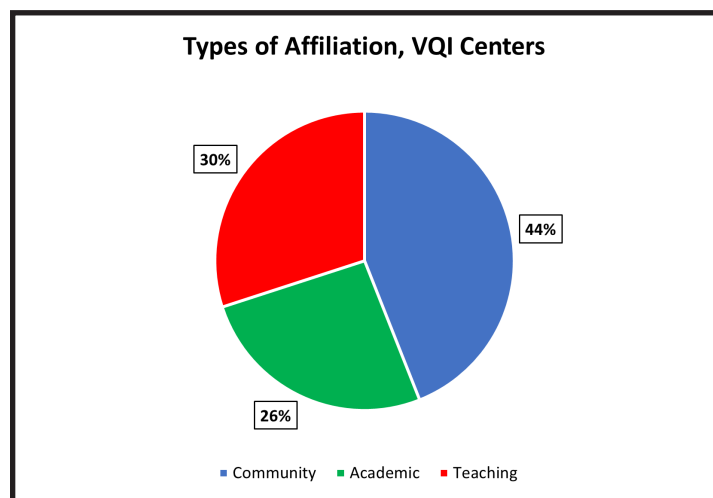
4. SVS VQI MEMBERS PROFILE

Participation in SVS VQI continues with steady growth reaching over 1,000 centers including office-based laboratories by the end of March 2023 (Figure 4.1). There is a broad distribution of different practice types – 26% academic institutions, 30% teaching hospitals and 44% community hospitals (Figure 4.2). There is also broad distribution of physician specialties – 43% vascular surgeons, 18% interventional cardiology, 14% interventional radiology, 5% general surgery, 5% cardiothoracic surgery, 4% neurosurgery, 3% podiatry, 2% orthopedic surgery and 1% Neurology (Figure 4.3).



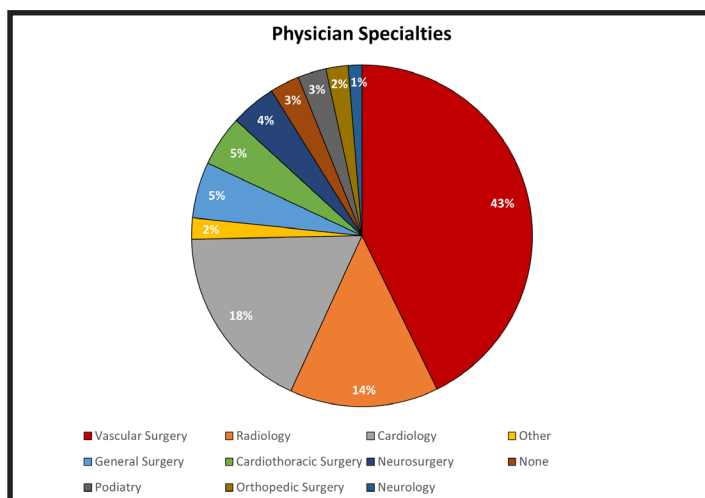
Source: Fivos PATHWAYS Data, April 2023

Figure 4.1: Growth of SVS VQI Centers (as of April 1, 2023)



Source: Fivos PATHWAYS data, Feb 2023

Figure 4.2: SVS VQI Participating Hospital Types



Source: Fivos PATHWAYS Data, Jan 2023

Figure 4.3: Distribution of SVS VQI Physician Specialties

5. SVS VQI TRAINEE PROGRAM

The SVS PSO rolled out the Quality Fellowship in Training (FIT) pilot program for residents and fellows in vascular surgery and medicine in collaboration with APDVS in 2022. The Fellowship in Training (FIT) program was designed to introduce residents and fellows in vascular programs to quality improvement through the mechanism of our patient safety organization (VQI/PSO). Using a mentor-directed approach, these FIT applicants worked closely with their VQI mentor on participation in regional biannual meetings and reviewed comparative data including center level quality improvement processes. Opportunities included engagement in quality charter development, center level QI process and research initiatives using VQI data reviewed by the VQI research advisory committee (RAC). Advancement through the 12–18-month program provided the FIT applicants opportunities to present their work during VQI@VAM with potential selection for a highly coveted Jack L Cronenwett Scholarship to continue research and/or work more closely with VQI/PSO staff and committees.

Five of the Sixteen FIT Fellows were selected in either Quality Improvement or Research to receive the Jack L Cronenwett Scholarship worth up to \$5,000 each. Those selected included:

2023 Jack L. Cronenwett Scholarship Award Recipients

Ben Li (Research)

Mentor: Dr. Graham Roche-Nagle
Toronto General Hospital

Christine Kariya (QI)

Mentor: Danny Bertges University of Vermont
Medical Center

Brianna Krafcik (Research)

Mentor: Phil Goodney
Dartmouth Hitchcock Medical Center

Hanaa Dakour Aridi – (QI)

Mentor: Michael Murphy
IU Health – Methodist

Caronae Howell – (Research)

Mentor: Ben Brooke
University of Utah Hospital and Clinics

Congratulations

A rigorous selection process was employed to review the next many strong applications for the 2023 –2024 FIT Fellow application process that we received for the program. We are inspired by the genuine interest in and commitment to quality improvement. We are confident that the VQI FIT Program will further enhance their knowledge and skills to be able to lead and improve the quality of vascular care throughout their careers. Please join us in congratulating this next outstanding group of young physicians committed to vascular care!

2023–2024 FIT Trainees

Deena Chihade

Mentor: Dr. Michael Costanza
University Hospital

Paul Rothenberg

Mentor: Dr. Samantha Minc
West Virginia University

Mitri Khoury

Mentor: Dr. Nikoloas Zacharias
Massachusetts General Hospital

Tiffany Bellomo

Mentor: Dr. Nikoloas Zacharias
Massachusetts General Hospital

Christopher Chow

Mentor: Dr. Arash Bornack
University of Miami

Mikayla Lowenkamp

Mentor: Dr. Mohammed Eslami
UPMC

Sarayana Sundaram

Mentor: Dr. Thomas Brothers
Medical University in South Carolina

Michael Fassler

Mentor: Dr. Sal Scali
University of Florida

Amanda Filiberto

Mentor: Dr. Adam Beck
University of Alabama Medical Center

Syeda Ayesha Farooq

Mentor: Dr. Dan Newton
VCU

Nakia Sarad

Mentor: Dr. Brian DeReburtis
Weill Cornell Medical Center



6. DATA QUALITY DASHBOARDS & REGIONAL REPORTS

The SVS PSO Best Practice Dashboards allow centers to review their performance and compare it to regional and national benchmarks. The SVS PSO registry committees select outcome measures to be reported in the dashboards, which are distributed quarterly to SVS VQI members. The dashboards provide each center their individual results, along with results for their region and SVS VQI overall. Results that are in the "top" 25th percentile are highlighted blue and those in the "bottom" 25th percentile are highlighted coral.

PVI CLAUDICATION

Procedure Timeframe: April 1, 2020 - March 31, 2021

Includes Peripheral Vascular Intervention (PVI) procedures for mild, moderate, or severe claudication.

Legend: Blue = "Top" 25th percentile Coral = "Bottom" 25th percentile

| Category | Outcome/Complication | Your Center | Your Region | VQI Overall |
|------------------------------|---------------------------------|-------------|-------------|--------------------------------|
| Case Data | | | | |
| | Number of Cases Reviewed | 117 | 1935 | 12419 |
| | Median Postop LOS (days) | 0 | 0 | 0 [0 0 0 0 1] |
| | Median Total LOS (days) | 0 | 0 | 0 [0 0 0 0 1] |
| Smoking | | | | |
| | Never | 10.3% | 20.4% | 14.8% [0 4 9.2 15.1 25.9] |
| | Prior | 62.4% | 49% | 48.6% [31 40.8 50 60.4 71.4] |
| | Current | 27.4% | 30.6% | 36.6% [14.4 25 36.3 48.1 57.8] |
| Preop ABI | | | | |
| | Preop ABI/Toe Pressure Reported | 81.2% | 64% | 75% [31.9 63.9 81.8 93.8 100] |
| Postop Events | | | | |
| | MI | 2.6% | 0.3% | 0.2% [0 0 0 0 0] |
| | Change in Renal Status | 0% | 0.4% | 0.3% [0 0 0 0 0.6] |
| | Thrombosis | 2.6% | 0.4% | 0.5% [0 0 0 0 2] |
| | Embolization | 0.9% | 0.3% | 0.4% [0 0 0 0 1.4] |
| | Target Lesion Dissection | 2.6% | 1.7% | 3.3% [0 0 0 3.8 10.2] |
| | Artery Perforation | 2.6% | 0.7% | 0.6% [0 0 0 0 2.2] |
| | Access Site Hematoma | 0% | 1.9% | 1.6% [0 0 0 2 5] |
| | Access Site Infection | 0% | 0.1% | 0% [0 0 0 0 0] |
| | Unplanned Amputation | 0% | 0.3% | 0.3% [0 0 0 0 0] |
| Discharge Medications | | | | |
| | Antiplatelet+Statin | 92.9% | 92.9% | 85.8% [66.8 81.1 89.9 97 100] |
| Discharge Destination | | | | |
| | Home | 96.6% | 96.6% | 97.8% [93.8 97.1 100 100 100] |
| | Rehab Unit | 1.7% | 1% | 0.9% [0 0 0 0 2.3] |
| | Nursing Home | 0% | 1.1% | 0.7% [0 0 0 0 2.6] |
| | Other Hospital | 0% | 0.1% | 0.2% [0 0 0 0 0] |
| | Homeless | 0.9% | 0.2% | 0.1% [0 0 0 0 0] |
| | Dead | 0.9% | 1% | 0.4% [0 0 0 0 0.5] |

PVI CHRONIC LIMB THREATENING ISCHEMIA

Procedure Timeframe: April 1, 2020 - March 31, 2021

Includes Peripheral Vascular Intervention (PVI) procedures for ischemic rest pain, ulcer/necrosis, non-healing amputation, both ulcer + non-healing amputation, or acute ischemia.

Legend: Blue = "Top" 25th percentile Coral = "Bottom" 25th percentile

| Category | Outcome/Complication | Your Center | Your Region | VQI Overall |
|------------------------------|---------------------------------|-------------|-------------|----------------------------------|
| Case Data | | | | |
| | Number of Cases Reviewed | 337 | 3894 | 23642 |
| | Median Postop LOS (days) | 2 | 1 | 1 [0 0 1 2 4] |
| | Median Total LOS (days) | 3 | 3 | 3 [0 0 2 4.5 7] |
| Smoking | | | | |
| | Never | 19.9% | 30.3% | 28.8% [13.5 21 27.6 34.5 43.8] |
| | Prior | 51.6% | 43.9% | 41.4% [26.6 34.7 41.7 47.6 53.4] |
| | Current | 28.5% | 25.8% | 29.7% [15.4 22.2 29.5 39.3 46.4] |
| Preop ABI | | | | |
| | Preop ABI/Toe Pressure Reported | 73% | 67.7% | 65.9% [27.9 48.1 70.6 84.1 91.9] |
| Postop Events | | | | |
| | MI | 0.6% | 0.8% | 0.8% [0 0 0 1 2.6] |
| | Change in Renal Status | 2.1% | 2.3% | 1.9% [0 0 0 3.2 5.2] |
| | Thrombosis | 1.8% | 0.9% | 1.2% [0 0 0 1.7 3.8] |
| | Embolization | 0.3% | 0.5% | 0.8% [0 0 0 0.8 2] |
| | Target Lesion Dissection | 6.2% | 2.3% | 4% [0 0 0.9 5.1 10.1] |
| | Artery Perforation | 0.6% | 0.4% | 0.9% [0 0 0 0.7 2.4] |
| | Access Site Hematoma | 3% | 2.3% | 2.2% [0 0 1.2 3.2 5.5] |
| | Access Site Infection | 0% | 0.2% | 0.1% [0 0 0 0 0] |
| | Unplanned Amputation | 3.3% | 2.5% | 3.1% [0 0 1 3.9 8.5] |
| Discharge Medications | | | | |
| | Antiplatelet+Statin | 92.3% | 87.2% | 81.8% [62.5 71.9 83.3 89.1 95.1] |
| Discharge Destination | | | | |
| | Home | 81.1% | 79.9% | 81.7% [69.2 76.7 82.8 88 94.8] |
| | Rehab Unit | 13.2% | 11.4% | 7.9% [0 1.7 5.4 11.3 17.7] |
| | Nursing Home | 4.2% | 6.3% | 7.3% [0 1.7 5.8 11 17.1] |
| | Other Hospital | 0.6% | 0.6% | 1.4% [0 0 0 1.8 4] |
| | Homeless | 0% | 0.1% | 0.1% [0 0 0 0 0] |
| | Dead | 0.9% | 1.6% | 1.6% [0 0 0.8 2.4 3.6] |

7. REGIONAL QUALITY GROUPS

SVS VQI has 18 regional quality groups based on geographic proximity (Figure 7.1). Regional quality group meetings are an important aspect of SVS VQI and a key component to successful quality improvement. Regional groups distinguish SVS VQI from almost all other registries. Each of the 18 groups hold biannual meetings that provide a forum for discussion on outcomes analysis and work on quality improvement.

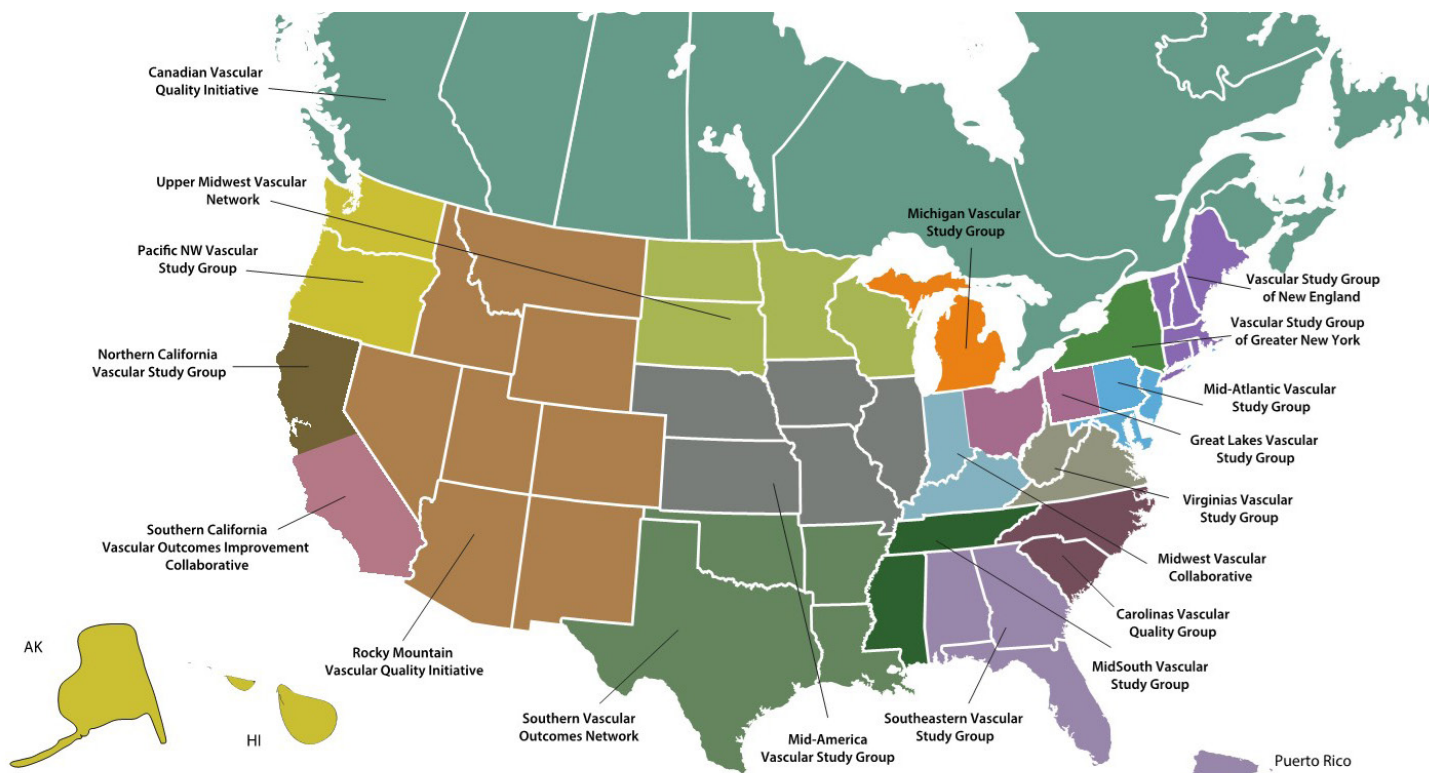


Figure 7.1: SVS VQI Regional Group Map

During each region’s bi-annual meeting, data are reviewed and discussed by the members present. Many groups identify an area for improvement and launch region-wide efforts to improve care. Topics that have been addressed include:

- Recording of hemodynamic data (ABI/Toe Pressure) prior to peripheral intervention
- Measuring aneurysm sac diameter one year following EVAR and TEVAR
- Increasing rates of IVC filter retrieval
- Reducing LOS for CEA and EVAR
- Increasing LTFU rates
- Increasing statins and antiplatelet prescriptions at discharge
- In hospital Stroke/Death for CEA, TFEM CAS, and TCAR
- Compliance with SVS EVAR sac size guidelines
- Compliance with SVS Cell-saver guidelines

Some regions have also used “hashtags” to collect unique data for quality improvement:

- Factors contributing to renal failure
- Frailty of Vascular Patients
- Patient Reported Outcomes
- Smoking Cessation
- Causes of Delirium with Vascular Patients
- EVAR SAC diameter size compliance with SVS Guidelines

8. QUALITY IMPROVEMENT PROJECTS: LEARNING FROM THE DATA

The SVS PSO encourages centers to submit quality improvement (QI) charters that are based on projects using SVS VQI data. This process has helped the SVS PSO identify groups working on similar initiatives and facilitate networking opportunities. As projects reach completion, the SVS PSO encourages centers to share best practices with the full VQI membership through the several QI resources and tools that are currently offered.

Quality Improvement Projects

SVS VQI centers work on QI projects which may be selected for presentation at the VQI Annual Meeting. These projects are often related to the National QI Initiatives; however, they can address any vascular topic supported by VQI data. We encourage centers to use their Pathways Dashboards when considering QI projects as well. The SVS PSO provides resources to assist SVS VQI centers with their QI projects.

Quality Improvement Tools

The SVS PSO, together with FIVOS, develops QI tools to assist VQI members, data managers, vascular nurses, quality improvement staff, and hospital administrators with their own vascular quality programs. These tools include:

- Presentations
- Webinars/Events
- VQI Annual Meeting
- QI Supplemental Guide
- Educational Videos/Audio
- Sample Charters
- Case Studies
- 1:1 Mentoring
- SVS VQI Annual Summary Report
- QI Annual Abstract Guide
- Annual Rapid Fire Abstract Guide

*Some tools are within members only section

Participation Awards

The SVS PSO encourages provider and center engagement through a program of annual Participation Awards. Participation Awards are given based on four domains that include: long-term follow-up rates, regional meeting participation, quality improvement initiatives, and registry participation. Certificates are distributed to centers receiving the maximum award level at the national meeting. All award levels are acknowledged during regional meetings. Marketing guidelines for displaying Participation Awards can be found on the VQI website. Participating centers can earn up to three stars based on the following criteria of the four domains:

- The completeness of long-term, follow-up reporting (LTFU) based on the percentage of patients for whom they have at least nine months of follow-up data
- Attendance at semi-annual meetings of a regional quality group and VQI@VAM
- Initiation of quality improvement activities based on VQI data
- The number of vascular registries in which the center participates

SVS VQI centers diligently work on and submit quality improvement charters throughout the year. In 2022, there were 113 charters submitted by the identified 18 VQI regions (Figure 8.1). Of these 113 charters, 3% were Hashtag, 22% were Regional, and 75% were Center charters. (Figure 8.2)

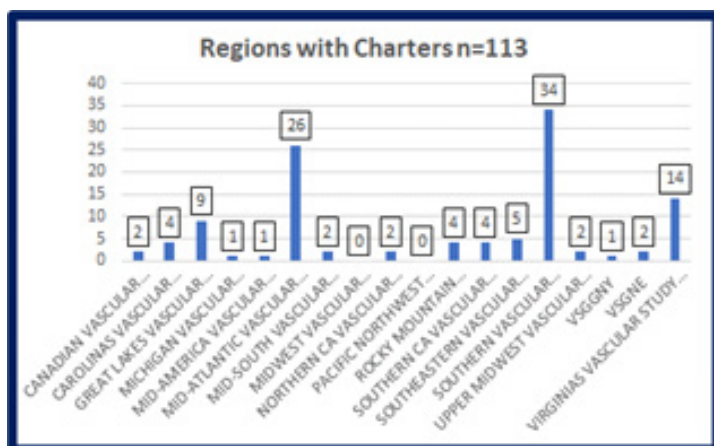


Figure 8.1 – Quality Improvement Projects Submitted in 2022

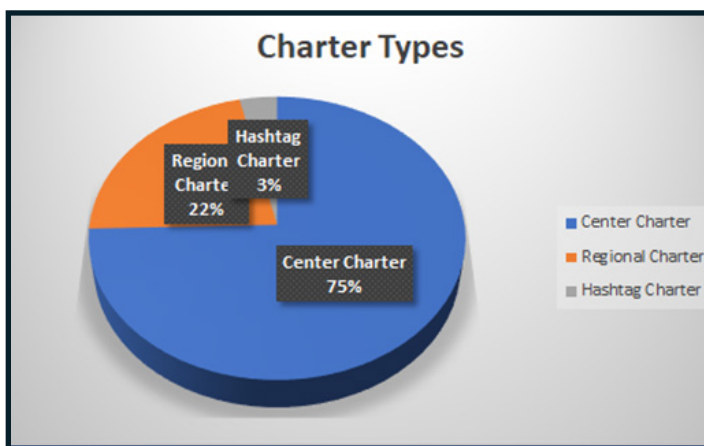


Figure 8.2 – Quality Improvement Charter Types

9. NATIONAL QUALITY IMPROVEMENT INITIATIVES OPTIMAL DISCHARGE MEDICATIONS AND EVAR LONG-TERM FOLLOW-UP IMAGING

The SVS PSO chose to focus on discharge medications and EVAR follow-up imaging because these two quality measures have been shown to increase long-term survival rates for vascular patients. Previous work by De Martino et al (J Vasc Surg, 2014 Jun;59(6):1615-21) demonstrated that patients undergoing major arterial procedures have a 25% improvement in 5-year survival if they are discharged on an anti-platelet agent and a statin. Long-term follow-up imaging is essential after EVAR to determine the success of the procedure, defined by exclusion of the aneurysm without significant endoleak or continued sac enlargement.

Tracking the performance of individual medical centers on these measures allows our members to use their data for successful QI initiatives.

To support these initiatives, the SVS PSO continues to provide quality improvement (QI) webinars, focused charter webinars, newsletters, regional meetings, and reports to assist you, our members, in analyzing your data, defining the problem, developing a plan (charter), implementing a process, and evaluating your outcomes. Many of you have created charters on D/C Medications and EVAR LTFU Imaging and are in the process of implementing your processes. Both initiatives are discussed in detail at regional meetings.

The VQI overall DC medication rate was 87% in 2022. In fact, most of the identified 18 VQI Regions have stabilized and the SVS PSO have decided that this NQI, although still important, will be termed as in 'maintenance mode'. (Figure 9.1)

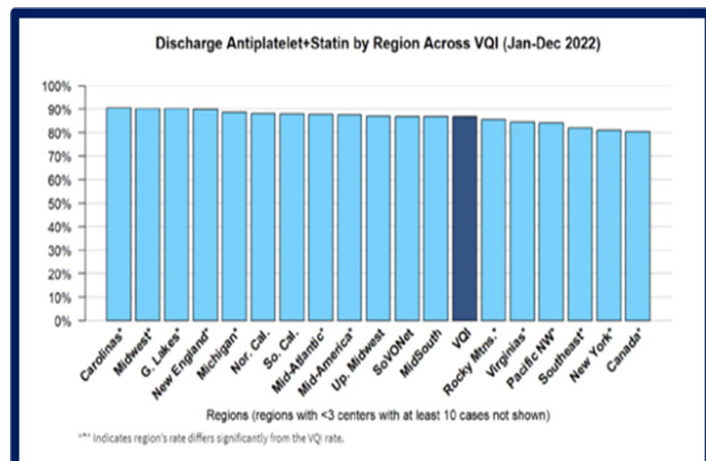


Figure 9.1 – Discharge Medications and Statin Rate for 121 SVS VQI Hospitals (2012 to Date).

Since EVAR imaging is a long-term follow-up measure, rates are not calculated until two years after the date of operation to allow centers adequate time to capture and enter LTFU. The goal is for 100% of EVAR patients to have imaging at one year. VQI overall LTFU for 2019 was at 71%, and VQI overall LTFU for 2020 was at 75%. We still have room for improvement to reach our goal (Figure 9.2).

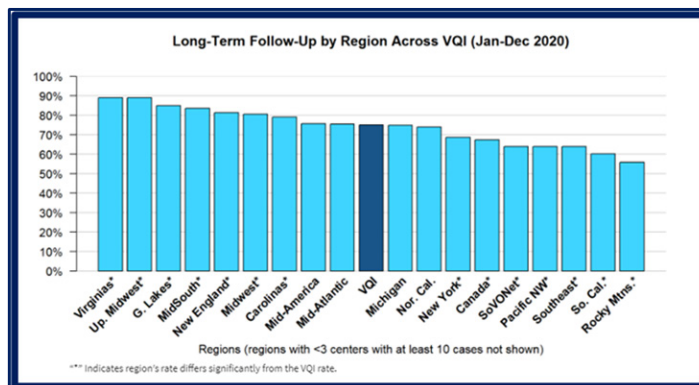


Figure 9.2 – Long-Term Follow-Up by Region

As of June 2023, we are adding a new National Quality Initiative of Smoking Cessation. Two quality measures were added in the 2023 Spring Reports. Those included Preoperative Smoking and Smoking Cessation.

Preoperative Smoking includes all elective procedures for arterial registries. Inclusion criteria is the percentage of those procedures where the patient was still smoking within one month of the procedure. For 2022, the VQI overall preoperative smoking rate is 30% (Figure 9.3).

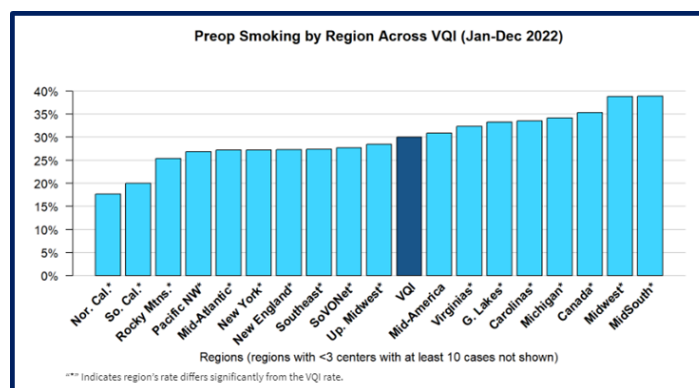


Figure 9.3 – Preop Smoking by Region

Smoking Cessation is a long-term follow-up measure. Rates are not calculated until two years after the date of operation to allow centers adequate time to capture

9. NATIONAL QUALITY IMPROVEMENT INITIATIVES OPTIMAL DISCHARGE MEDICATIONS AND EVAR LONG-TERM FOLLOW-UP IMAGING (CONT.)

and enter LTFU. This measure includes all elective procedures for arterial registries performed on patients still smoking within one month of the procedure. It excludes procedures that do not have at least one long-term follow-up record where the patient’s follow-up smoking status was recorded. For 2020, the VQI overall smoking cessation rate was 26% where the patient was not smoking within one month on follow-up for *all* LTFU records.(Figure 9.4)

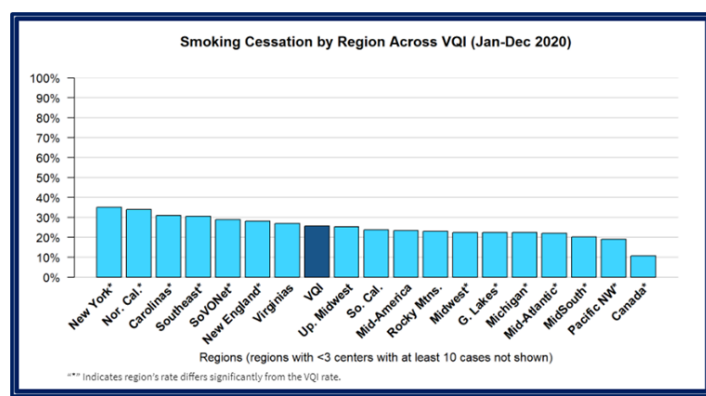


Figure 9.4 – Smoking Cessation by Region

Given this new National Quality Initiative, there will be many webinars, toolkits, and education provided. Please visit www.vqi.org for more information and to register for various educational offerings.

With the various resources and support provided to you, our members, together, we can reach our goal for each of these initiatives.

10. SVS PSO DATA INTEGRITY AUDITS

The SVS PSO is excited to announce the next phase of our data integrity audits. Historically, the SVS PSO have performed both claims validation audits and data outlier audits. We have rolled out the new data integrity audit in May 2023 for centers participating in the carotid artery stent registry. Over time, the SVS PSO intends to roll out data integrity audits to all our registries.

There have been over 600 published articles and 1000+ total data analysis projects using VQI data. These published articles have assisted in developing practice guidelines and standards. It is imperative for the SVS PSO to support the validity of the data captured on our registry. Gaps in a centers’ data integrity can lead to poor decision-making that can impact the data analysis, benchmarking, and quality of patient care. Without a tool to objectively measure the accurateness of the data entered, areas of opportunities for improvement are missed. The overall purpose of this program is to ensure that data submitted to the VQI registries is complete, valid, and accurately interpreted and collected, to improve the quality of VQI registries.

The SVS PSO has contracted with an independent firm to perform the data integrity audits. Telligen will blindly abstract the selected cases. Then the Telligen results will be compared to the originally abstracted information to determine an accuracy rate.

Centers who are not currently selected for claims validation audits and are participating in the carotid stent registry could be randomly selected to included in the 2023 data integrity audits. Over time, all VQI participating sites will be audited on a rotating basis over a three-year period.

11. SVS VQI CARDIAC RISK INDEX (VQI CRI)

The VQI Cardiac Risk Index (VQI-CRI) estimates the chance that a patient will have an in-hospital postoperative myocardial infarction based on preoperative patient and procedure information that is entered into an online calculator (Figure 11-1). These estimates are calculated using VQI data collected from a large number of patients who had a procedure similar to the one for which the patient may be a candidate. The VQI -CRI was designed to provide accurate, patient-specific risk estimates to guide decision-making and informed consent. The VQI-CRI is available for the following five vascular surgery procedures: Carotid Endarterectomy, Endovascular AAA Repair, Infrainguinal Bypass, Open AAA Repair, and Suprainguinal Bypass.

Once the patient characteristics have been entered, the VQI-CRI calculator outputs the resulting risk value along with a figure to display comparative risk. The user then has the option to save this output via the "Generate report" feature, which will create an HTML document (Figure 11:2).

This calculator will be available through the VQI website and QxMD in both a desktop and mobile friendly format.

The VQI CRI can be accessed from the VQI website. Click here to learn more: <https://www.vqi.org/risk-calculators/>

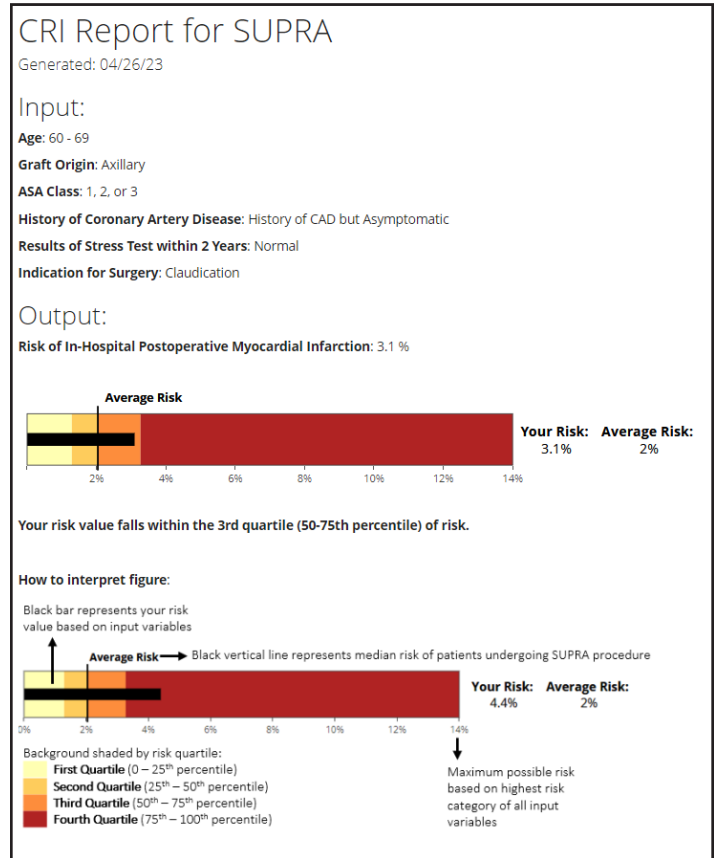


Figure 11.2: CRI Report

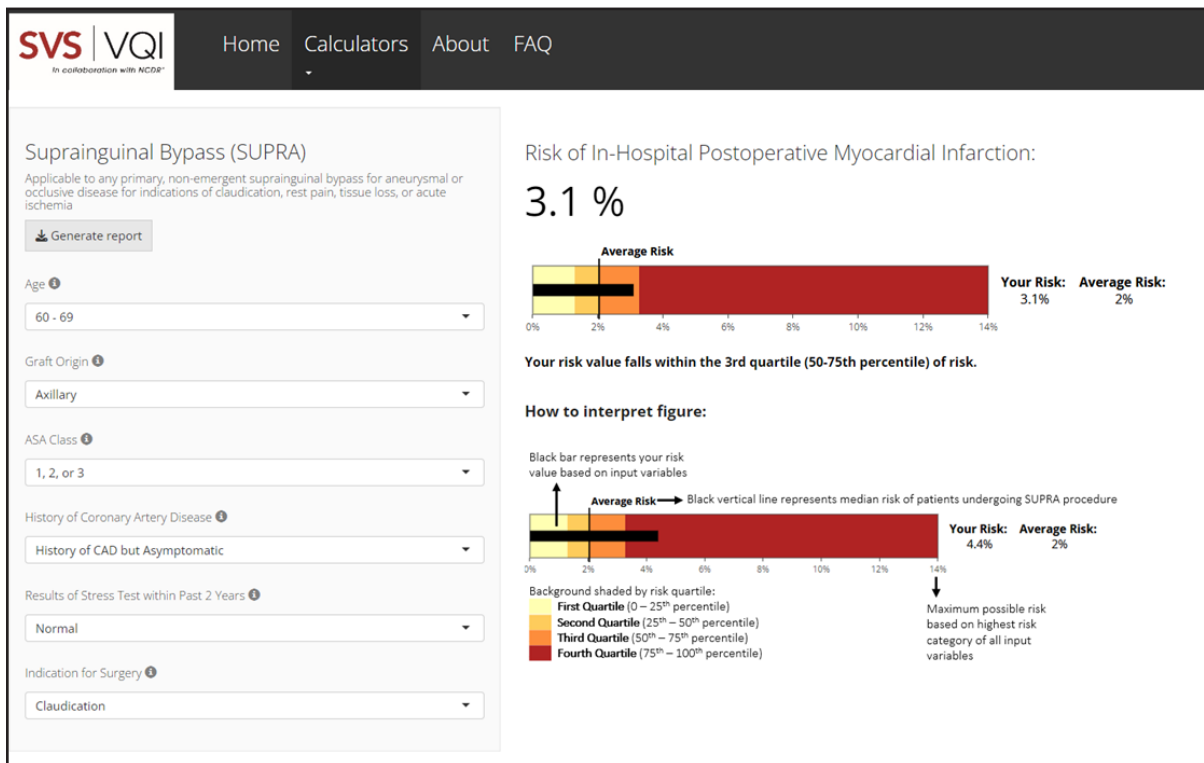


Figure 11.1: CRI Online Calculator

12. SVS VQI DATA ANALYSIS

SVS VQI physicians may request de-identified datasets from each registry for analysis. The SVS PSO Research Advisory Council reviews and evaluates requests for datasets by investigators, who provide the RAC a description of their proposed project. As of the end of April 2023, the RAC has approved over 1,000 projects, and of those, 695 have been published in peer-reviewed journals.

The SVS VQI Vascular Implant Surveillance and Interventional Outcomes Network (VISION) is a partnership between the SVS VQI and the Medical Device Epidemiology Network (MDEpiNet) that directly supports the mission of the SVS VQI. VISION links SVS VQI registry data to Medicare claims to generate novel registry-claims linked datasets. The datasets combine the granular clinical detail from the SVS VQI with discrete long-term outcomes derived from Medicare claims. VISION data is used to generate center-specific feedback reports called, Survival, Reintervention and Surveillance (SRS). Each report shows each center's long-term performance when compared to the VQI for Medicare patients undergoing the following procedures:

- Endovascular abdominal aortic aneurysm repairs (EVAR)
- Elective abdominal aortic aneurysm repair (EVAR + Open AAA)
- Carotid endarterectomy for asymptomatic stenosis
- Carotid artery stent procedures (TCAR and transfemoral procedures) for asymptomatic stenosis

Use of the data is governed by a Data Use Agreement (DUA) between Weill Cornell Medical College and the Center for Medicaid and Medicare Services (CMS). VISION replaces the previous Medicare-Match data process.

Visit <https://www.vqi.org/data-analysis/> for everything you need to learn about blinded dataset request policies and procedures, view already approved projects for possible collaboration, and more.

13. SVS CLINICAL PRACTICE GUIDELINES AND THE SVS VQI

Professional societies write clinical practice guidelines to improve care and reduce practice variation. A few years ago, the SVS Document Oversight Committee asked VQI to assess practitioner compliance with guidelines and adoption over time. VQI was able to measure adherence to guidelines as well as correlating guideline compliance with outcomes. Subsequently two analyses of guideline compliance have been done on AAA and carotid disease. Vascular Quality Initiative assessment of compliance with Society for Vascular Surgery clinical practice guidelines on the care of patients with abdominal aortic aneurysm was published in the September 2020 issue of the JVS (VASCULAR QUALITY INITIATIVE ASSESSMENT OF COMPLIANCE WITH SOCIETY FOR VASCULAR SURGERY CLINICAL PRACTICE GUIDELINES ON THE CARE OF PATIENTS WITH ABDOMINAL AORTIC ANEURYSM. Eldrup-Jorgensen J, Kraiss LW, Chaikof EL, Neal D, Forbes TL. J Vasc Surg. 2020 Jan 20). Participation in the VQI registry was shown to provide an objective assessment of performance and compliance with guidelines. Compliance with recommendations was associated with improved outcomes and was encouraged for providers. VQI provider and center reports may be used as a focus for quality improvement efforts.

During the past year, another analysis has been done on compliance with treatment for extracranial cerebrovascular disease CPG, (VASCULAR QUALITY INITIATIVE ASSESSMENT OF COMPLIANCE WITH SOCIETY FOR VASCULAR SURGERY CLINICAL PRACTICE GUIDELINES ON THE MANAGEMENT OF EXTRACRANIAL CEREBROVASCULAR DISEASE. Marcaccio CL, AbuRahma AF, Eldrup-Jorgensen J, Brooke, BS, Schermerhorn ML. J Vasc Surg. 2023 Mar 20;S0741-5214(23)00471-8. doi: 10.1016/j.jvs.2023.03.026.). Compliance with these recommendations was associated with improved outcomes after carotid revascularization. This finding confirmed the value of guideline compliance. Optimization of VQI data to promote evaluation of guideline compliance and distribution of these findings to VQI centers and providers will help facilitate quality improvement efforts in the care of vascular patients. VQI continues to collaborate with the SVS Document Oversight Committee to analyze compliance with SVS clinical practice guidelines.

14. NEW VQI.ORG EXPERIENCE

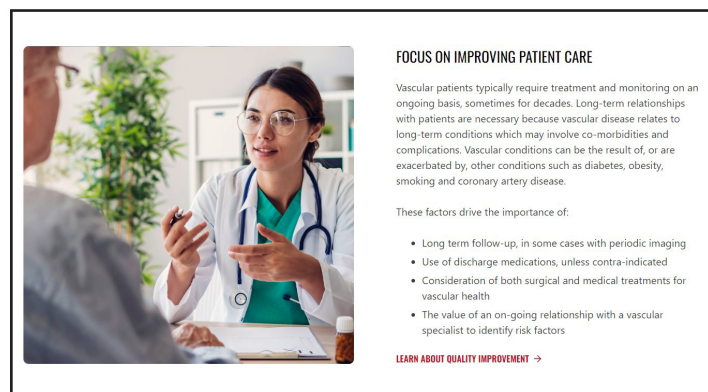
New VQI Website!

We started the process of getting a newly designed VQI website over a year ago, and worked to develop what we hope users find to be an easier site to navigate. We have also added some visual pieces and videos that provide the benefits of the VQI in the words of our members. Earlier this year, we launched, the new and improved [VQI Website](#).



Exciting New Features

The new site features a clean and easy to navigate interface, webpages dedicated to each of the 14 different VQI Registries, consistency among the Regional Group pages, more robust search capabilities, a streamlined Members Only area, a calendar of upcoming webinars and events, and much more!



VQI Website - Members Only Area

The Members Only area of the VQI Website has also been redesigned. If you do not have a login, please reach out to Jen Correa, jcorrea@svspso.org (please note you will need different credentials than your PATHWAYS login). With Members Only, users have access to resources such as VQI@VAM recordings, certain webinar recordings, and much more. Please note that this login is different than your PATHWAYS user account.

15. SVS VQI COMMUNICATIONS

In addition to the new website, the SVS VQI has made many efforts to improve on the methods to disseminate information to VQI participants and other stakeholders. Here are just some of the ways, we are helping to get information into your hands.

Monthly VQI News

The monthly VQI Newsletter is your source for all things VQI. The newsletter contains information about upcoming events, PATHWAYS announcements, VQI@VAM information, where to access webinars and recordings, and many other important details.

Follow Us On LinkedIn

The SVS Vascular Quality Initiative (VQI) is now on [LinkedIn](#). Follow our page for the latest news and events!

FDA Notifications

As a Patient Safety Organization, we share Safety Notifications with VQI Members: FDA will contact the SVS PSO with Safety Notifications it wants us to communicate. Safety Notifications will appear in both the PSO and SVS newsletters All Safety Notifications are posted to the VQI and SVS Websites: <https://www.vqi.org/resources/fda-communication/>

Regional Group Meetings

Regional Group Meetings are a great source of information for VQI members. Information about each Regional Group meeting can be found on the individual Regional Group pages. On each page, you will find the location, links to minutes and presentations, etc...

Quality Improvement Calls/Webinars

Betsy Wymer, SVS VQI Director of Quality, hosts quarterly Quality Improvement Calls and Quality Improvement Webinars. Registration links for these events can be found on the [VQI website](#).

Email Communications

We know email fatigue is real. We try not overloading you with emails, but sometimes, that is simply the most direct and efficient way of getting you the information you need. Once you sign up for the VQI and have access to PATHWAYS, you will automatically receive emails. If you are not receiving emails from us, there is a chance that your facility may have a firewall preventing messages from getting through. Emails we send come from either Vascular Quality Initiative or PATHWAYS Support.

16. COLLABORATION WITH SOCIETIES

Although VQI was begun by vascular surgeons, less than 50% of the current membership in SVS VQI are vascular surgeons. There is a broad multi-disciplinary participation in the SVS VQI, which includes physicians from Cardiology, Radiology, General Surgery, Cardiothoracic Surgery, Neurology, Neurosurgery and other specialties. Recognizing this fact, the SVS VQI has fostered working relationships with many of the societies that represent these various specialties to help inform and promote the registries. The SVS VQI's governing council and registry committees also include volunteers from these different disciplines.

The SVS VQI would like to recognize and thank the following Societies for their ongoing involvement with the SVS VQI. The expertise and guidance provided by our colleagues has been instrumental to the success of VQI:

- American College of Cardiology
- American Heart Association
- American Venous Forum
- Society for Vascular Medicine
- Society for Vascular Nursing
- Society for Vascular Ultrasound
- Vascular Access Society of the Americas



AMERICAN COLLEGE OF CARDIOLOGY (ACC)/NCDR

The American College of Cardiology and Society for Vascular Surgery have moved to a single vascular registry to harness the strengths of both organizations in improving care and outcomes of patients with vascular disease.

The ACC NCDR Peripheral Vascular Intervention (PVI) registry has been operated by SVS since January 1, 2021, creating a co-branded VQI program that is a unique and comprehensive resource for measuring and improving the care provided to a growing population of patients with vascular diseases.

The new registry collaboration provides greater opportunities to evaluate new and emerging technologies, pharmacologic therapies, and medical and lifestyle management. It also provides a rich source of data for academicians, the FDA and industry looking to answer scientific questions about patient characteristics and outcomes and the use and effectiveness of different treatments.

The ACC holds seats on SVS PSO committees and councils, and collaborates with the PSO on Quality Improvement education.

Over 60 former NCDR PVI sites now participate in VQI. Participants who have not yet joined the SVS VQI, may contact the SVS VQI account team by emailing vqi@fivoshealth.com, or by calling 603-298-0263, to begin enrollment.



AMERICAN HEART ASSOCIATION and SOCIETY FOR VASCULAR MEDICINE

The SVS VQI and the Society for Vascular Medicine (SVM), in collaboration with the American Heart Association® (AHA) created and released the Vascular Medicine Consult Registry (VMC) in early 2020. Dr. Josh Beckman, Dr. Marc Bonaca, and former Association president Dr. Mark Creager are among those members serving on the VMC Steering Committee to provide scientific expertise and oversight. Dr. Randall DeMartino, MD and Dr. Michael R. Jaff serve as co-chairs of the VMC Steering Committee.

The Registry targets new patients who are being treated medically for Atherosclerotic Carotid Artery Occlusive Disease, Abdominal Aortic Aneurysm, and Peripheral Lower Extremity Arterial Disease due to atherosclerosis. Medication details and dosages, risk factor and lifestyle modifications, non-operative treatments and counseling will be the emphasis of the VMC. The Registry also helps define the natural history of disease and the impact of medical management. Features include a web-based platform with real-time reporting.

The American Heart Association, a global force for longer, healthier lives, has a longstanding commitment to improving systems of care through its quality improvement programs such as its flagship Get With The Guidelines® (GWTG) program, promoting consistent adherence to evidence-based guidelines in hospital and healthcare settings across the U.S. This team effort represents an opportunity to leverage the strengths of both organizations to improve care delivered to patients with vascular disease in the outpatient populations as well.



American Venous Forum

AMERICAN VENOUS FORUM

The Society for Vascular Surgery® Vascular Quality Initiative® (SVS VQI) and the American Venous Forum (AVF) are pleased to collaborate in the treatment of venous disease.

With more than 20 percent of the adult population suffering from chronic venous diseases, AVF is committed to expanding its efforts through the VQI to assess the efficacy of various treatments for patients with venous disease. AVF and SVS have positioned themselves as leaders in vascular quality improvement by providing a platform for their members to analyze outcomes, determine best practices, and collaborate on quality improvement efforts across regions.

The VQI and AVF worked together to launch the Varicose Vein Registry in 2014 and the Venous Stent Registry in late 2019. As part their collaboration with VQI, AVF thought leaders serve as volunteers on the committee that worked on creating and enhancing both registries, including participation on the Venous Research Advisory Committee (RAC). Additionally, the VQI participates in registry education sessions at the AVF annual meeting.

The Varicose Vein Registry captures procedures performed in vein centers, office-based practices, and ambulatory or inpatient settings and includes therapies such as thermal radiofrequency ablation, thermal laser ablation, mechanochemical ablation, chemical ablation, embolic adhesive ablation, and surgical ablation (including high ligation, stripping, and phlebectomy). The Venous Stent Registry treats patients with symptomatic venous obstructions due to chronic thrombosis and/or some venous compression disorders.

17. CORPORATE SUPPORT

The operations of the SVS PSO are financed by fees paid by participating sites. New project development, including addition of new registries, quality reports, and improved functionality in SVS VQI has been made possible through generous unrestricted contributions by Quality Champion, Quality Partner and Quality Associate-level corporations. Corporate sponsors of the SVS PSO are listed below:

Quality Champions



Quality Partner



Quality Associate



American Venous Forum
Promoting venous and lymphatic health



American Heart Association



SOCIETY FOR VASCULAR ULTRASOUND



VASCULAR ACCESS SOCIETY OF AMERICA



Society for Vascular Medicine

18. USING SVS VQI DATA FOR COLLABORATIVE PROJECTS WITH FDA AND INDUSTRY

Medical devices are an integral component of vascular healthcare. SVS VQI collects clinical data to help better understand device performance. Data may be used to meet regulatory requirements, support post-approval surveillance or expand existing indications for use (IFU).

Post-Approval Surveillance Projects

The use of SVS VQI data for post-approval surveillance is consistent with the FDA vision of using real world evidence and registry-based evaluation throughout the total product lifecycle. Initial projects have leveraged existing SVS VQI infrastructure and reduced recruitment time and expenses. For example, the recruitment for the Thoracic EndoVascular Aortic Dissection (TEVAR) project (see below) was completed in half the time initially estimated by industry sponsors, Medtronic and Gore.

SVS VQI has partnered with several device manufacturers to provide aggregate data for product development, creation of performance standards, and expansion of device indications:

TEVAR Post-Approval Surveillance Projects

Initiated in October 2014, this project has demonstrated the value of expanding surveillance to real-world device evidence with faster than expected enrollment while meeting FDA requirements. In partnership with Gore and Medtronic, the SVS PSO and M2S has completed enrollment of the one- year and five-year cohorts.

Last year the Cook Zenith Dissection Endovascular System® joined the TEVAR Dissection Surveillance Project. FDA approval was granted for this device after safety and effectiveness were demonstrated in pre-market studies of complicated dissection with the proviso that the efficacy of TEVAR treatment of descending aortic dissection would be more fully analyzed through post-market surveillance, as is done through VQI for the W. L. Gore and Medtronic devices after their approval.

For more information, please contact:
tevarproject@fivoshealth.com

Transcarotid Artery Revascularization (TCAR) Surveillance Project

The TCAR Surveillance Project is designed to study the efficacy of TCAR in comparison with the standard of care, CEA, on patients requiring intervention for carotid stenosis as performed by centers participating in the Vascular Quality Initiative (VQI). The TCAR Surveillance Project was evaluated by the US Food and Drug Administration (FDA) and found to be scientifically valid and clinically relevant. Based on this, reimbursement for TCAR procedures on high risk patients performed by centers participating in the VQI TCAR Surveillance Project was approved on Sept. 1, 2016, by the Centers for Medicare and Medicaid Services (CMS) under the current National Coverage Determination. The TCAR Surveillance Project

is directed by an SVS PSO Steering Committee that will make periodic analyses of outcomes collected in the VQI CAS and CEA Registries. Last year the FDA issued an Approval For [The Expansion Of The Indications For Use To Include Treatment Of Patients At Standard Risk For Adverse Events From Carotid Endarterectomy](#). For centers or providers to be reimbursed for performance of TCAR, they must participate and enter data in the VQI Carotid Artery Stent Registry.

For more information on the TCAR Surveillance Project, please see ClinicalTrials.gov:
<https://clinicaltrials.gov/ct2/show/NCT02850588>

FDA PANEL ON TYPE III ENDOLEAKS AND REAL WORLD EVIDENCE

The US Food and Drug Administration (FDA) convened a two-day panel in November, 2021 to review the performance of endovascular aortic stent grafts and real-world evidence. The FDA panel expressed concern about the real world data that is available for evaluation and surveillance of endovascular aneurysm repair (EVAR) devices. The panelists recommended strengthening EVAR surveillance and data collection recognizing that it would require a change in culture and additional support.

IMPROVING PATIENT CARE – The IFU for all EVAR devices and SVS clinical practice guidelines recommend annual scans following EVAR. Current compliance in clinical practice with annual follow up is poor. Numerous reports have shown that less than half of patients undergo recommended imaging post-EVAR putting patients at risk for undetected endoleaks, aneurysm rupture and aneurysm-related mortality. Clearly providers and patients need more motivation to comply with the guidelines regarding follow up. Lack of compliance with scanning results in poor patient care and lack of evidence for evaluation of device performance and regulatory guidance.

IMPROVING DATA COLLECTION – The primary message from the FDA panel is the increased risk of type III endoleaks from certain devices and the lack of adequate data for analysis. Data sources including the SVS VQI registry and Medicare claims were mentioned as potential sources/solutions for data collection. At present, 189 sites participate in the VQI EVAR registry. In order for VQI centers to ensure adequate follow up and data collection annually for 5+ years would require additional personnel and resources. VQI has the appropriate infrastructure in place – registry forms and data collection personnel are present at all sites. In order to obtain adequate data for analysis, it is not necessary to require all centers to participate in prolonged post-EVAR data collection. A subset of centers could record annual long term follow up providing adequate data for device evaluation.

VASCULAR RESEARCH COLLABORATIVE (VRC) –

A subset of VQI centers (40-50) could be selected based on volume, quality of data entry, site variety (academic, teaching, community, urban, rural, etc) and patient diversity (Under Represented In Medicine) to ensure appropriate representation. These sites, a tiered subset of VQI centers, would require additional financial support to ensure annual follow up for 5-10 years. As many centers are performing 50-100 EVARs annually, this tiered approach would provide a large sample (>3000 annually) for developing an evidence-based analysis of device performance.

VQI-VISION – An existing program called the VQI Vascular Implant Surveillance and Interventional Outcomes Network, or VQI-VISION, has linked Medicare patients in the VQI registry to their Medicare claims, and may be a feasible next step forward to improve data collection after EVAR.² This partnership, in collaboration with the FDA-funded Medical Device Epidemiology Network (MDEpiNet), allows the coordinated registry network (CRN) formed by linking VQI patients to their own Medicare claims to measure long-term outcomes after EVAR. Data from VQI-VISION has been used to examine five and ten-year outcomes after EVAR, including survival, the need for reintervention, and device surveillance. During the panel discussion, the group discussed using data from VQI-VISION to create long-term, device-specific Device Dashboards, which would provide surgeons, regulators, and industry stakeholders long-term outcomes data for device evaluation and surveillance.

In conclusion, FDA needs better data to evaluate safety and efficacy. Industry needs better data for device evaluation and improvement. Our patients need the best devices and the best care. Via VQI, VRC or VISION, VQI can provide the data to guide device evaluation and assess compliance with SVS clinical guidelines. EVAR manufacturers have submitted a proposal to the FDA using VQI and VISION methodology for enhanced device data collection and surveillance.

¹ USDA: US Food & Drug Administration. November 2-3, 2021: Circulatory System Devices Panel of the Medical Devices Advisory Committee Meeting Announcement. 2021 [cited 2022 Jan]; Available from: <https://www.fda.gov/advisory-committees/advisory-committee-calendar/november-2-3-2021-circulatory-system-devices-panel-medical-devices-advisory-committee-meeting>.

² Tsougranis G, Eldrup-Jorgensen J, Bertges D, Schermerhorn M, Morales P, Williams S, Bloss R, Simons J, Deery SE, Scali S, Roche-Nagle G, Mureebe L, Mell M, Malas M, Pullin B, Stone DH, Malone M, Beck AW, Wang G, Marinac-Dabic D, Sedrakyan A, Goodney PP. The vascular implant surveillance and interventional outcomes (VISION) coordinated registry network: An effort to advance evidence evaluation for vascular devices. *Journal of vascular surgery*. 2020;72:2153-2160

19. REGISTRY ASSESSMENT OF PERIPHERAL INTERVENTIONAL DEVICES (RAPID) UPDATE

RAPID is a public private partnership of professional society registries (Society for Vascular Surgery, American College of Cardiology and Society for Interventional Radiology), academia, industry and federal regulators including CMS and FDA. The FDA, through the Medical Device Epidemiology Network (MDEpiNet), has promoted the concept of Coordinated Registry Networks (CRNs) to generate real-world evidence on medical device performance. The goal of RAPID is to promote the evaluation of peripheral vascular devices throughout the total product lifecycle using registry based data.

Randomized controlled trials nested in registries
Over the past year, RAPID has focused on promoting the use of registries for randomized clinical trials. VQI has participated in and presented at two virtual think tanks sponsored by MDEpiNet RAPID. There are two work groups in RAPID focused on peripheral vascular disease, Peripheral Arterial Disease and Aortic Interventions. There is significant interest in using clinical registries, e.g. VQI, to nest clinical trials. The Aortic Interventions work group has written a Registry-Based Randomized Clinical Trial (RBRCT) aimed at enhancing and collecting long term follow up after EVAR.

VQI is one of the few cardiovascular registries that collects device identification details using the Global Unique Identification Database (GUDID). GUDID is an FDA administered database that is a reference catalog for all medical devices. By collecting GUDID on devices, VQI is able to identify a device in conjunction with patient level clinical, anatomic and procedural details and correlate it with outcomes. Specific device identification has been critically important in analyzing the Paclitaxel controversy and EVAR endograft performance. VQI has engaged Symmetrics® in an effort to enhance the value of GUDID. Symmetrics has standardized device names, amended device information and modified Global Medical Device Nomenclature (GMDN).

20. INTERNATIONAL CONSORTIUM OF VASCULAR REGISTRIES (ICVR) UPDATE

The ICVR was launched in November 2014 at Cornell University as a partnership of VQI, VASCUNET and other registries that include over 12 national registries, the FDA, manufacturers, and other stakeholders. The mission of the International Consortium of Vascular Registries (ICVR) is to provide a collaborative platform through which registries and other stakeholders around the world can share data to improve vascular health care. In order to create this collaborative platform, the ICVR is leveraging existing national registries, including the Society for Vascular Surgery Vascular Quality Initiative (VQI) and Vascunet, a vascular registry collaboration within the European Society of Vascular Surgery which involves national and regional vascular registries from Europe, Australia and New Zealand.

The ICVR is proud to announce that in 2022 it will complete a project entitled "ICVR Evaluation of EVAR Treatment of Ruptured AAA". The aim of this project is to evaluate the safety and effectiveness of EVAR devices used to treat rAAA (compared to open rAAA repair) in the ICVR registries, and to provide manufacturers of current EVAR devices with individual data about their device. The design included collection of data from 13 different countries participating in ICVR.

The central purpose of this project was to evaluate in-hospital mortality after EVAR for ruptured AAA in a multinational registry collaboration using mortality associated with standard open repair to establish a benchmark. The hypothesis is that EVAR for rAAA is associated with in-hospital survival that meets a performance goal derived from open rAAA repair. Given that untreated rAAA carries a mortality approaching 100%, the intent of this project is to focus specifically on survival to discharge. Further, the long term safety and effectiveness of these EVAR devices has been extensively studied and established for elective AAA repair. The key to improving outcome after rAAA repair is improving initial survival, which is the major endpoint for this project.



21. THE SVS VQI AND COMPLIANCE WITH THE EUMDR

The European Medical Device Regulation (EU MDR) was introduced in 2017 to ensure high standards of quality and safety for medical devices being used in Europe. It establishes a framework for medical device monitoring to ensure a high level of health and safety while supporting innovation. While the new European MDR includes pre-approval evaluation for medical device manufacturing, it adds a new total life-cycle reporting requirement to medical device regulation.

One of the most important but most challenging requirements of EU MDR is the active Post-Market Clinical Follow-up required to establish safety and performance during the total lifecycle of a device. Manufacturers must report such data to maintain their CE mark for each device. Fivos and the Society for Vascular Surgery Vascular Quality Initiative (SVS VQI) recognize the importance of supporting manufacturers and regulators, both domestic and international, to evaluate the safety and performance of vascular devices currently being used in daily practice. SVS VQI collects much relevant data to provide the real-world evidence needed to meet the new EU MDR. "Manufacturers face significant challenges in collecting real-world clinical follow-up data about ALL their devices," said Jack Cronenwett, MD, CMO Fivos. "In fact, some companies are now considering the need to remove some currently CE-marked devices from the European market if they cannot obtain needed data. We are pleased to have supplied data from the SVS VQI to several manufacturers to help them successfully meet EU MDR requirements. Going forward, we believe the SVS VQI registry will be a primary data source to address current and future regulatory challenges faced by device manufacturers world-wide."

22. TECHNOLOGY & REGISTRY DEVELOPMENTS

Upcoming Registry Highlights:

- Video training library on the Support Tab
- Help Text version difference in PATHWAYS
- Smoking Cessation
- Harmonization of anticoagulants across registries
- Harmonization of CAD across registries
- Infra & Supra Follow-up Outcomes Reports
- Open AAA Major Revision

PATHWAYS Technology Highlights:

Recent Records

Added procedure status column

Registry Highlights:

New Reporting

HDA Follow-up Outcomes Report
TEVAR Follow-up Outcomes Report
IVC Filter Follow-up Outcomes Report
VVR Follow-up Outcomes Report

PVI

Implemented Device Assistant with Symmetric integration

Infra-inguinal & Supra-inguinal Bypass registry

Major revision to both the Infra and Supra-inguinal bypass registries
Cloning feature for LEB procedures

Across-Registry Revisions

Added Bleeding Complication fields
COVID update to capture past history

Minor Revisions

Peripheral Vascular Intervention - minor revision to align with Infra/Supra changes
Carotid Artery Stent - expanded pre-dilate options, flow reversal

23. FUTURE DEVELOPMENTS

In 2023-2024, the SVS VQI plans to support improved care and promote patient safety in the following areas:

- Data Integration from EMRs directly into the SVS VQI to reduce data burden and enhance data integrity
- Planned Revisions to the OAAA and Amputation Registries
- The addition of the National Quality Initiative on Smoking Cessation
- Improvements to On-line Reporting and Analytics



APPENDIX

APPENDIX A–VQI SITES LISTED IN ALPHABETICAL ORDER (AS OF 5/1/2023)

Abbott Northwestern Hospital (Allina) MN
 Abington Memorial Hospital PA
 Abrazo Arrowhead Campus AZ
 AdventHealth Celebration FL
 AdventHealth Daytona Beach FL
 AdventHealth Ocala FL
 AdventHealth Orlando FL
 AdventHealth Tampa FL
 AdventHealth Waterman FL
 Adventist Health St. Helena CA
 Adventist Healthcare Shady Grove Medical Center MD
 Adventist Healthcare White Oak Medical Center MD
 Adventist Medical Center La Grange IL
 Advocate Christ Medical Center IL
 Advocate Condell Medical Center IL
 Advocate Good Samaritan Hospital IL
 Advocate Good Shepherd Hospital IL
 Advocate Illinois Masonic Medical Center IL
 Advocate Lutheran General Hospital IL
 Advocate Sherman Hospital IL
 Advocate South Suburban Hospital IL
 Advocate Trinity Hospital IL
 Alamance Regional Medical Center NC
 Alaska Regional Hospital AK
 Albany Medical Center NY
 Albany Vascular Specialist Center GA
 All Saints Hospital WI
 Allegheny Clinic Vascular Surgery PA
 Alta Bates Summit Medical Center CA
 Altru Hospital ND
 Alyeska Vascular Surgery AK
 Anmed Health SC
 Arizona Endovascular Center AZ
 Arizona Vascular Specialists, LLC AZ
 Arkansas Heart Hospital AR
 Arkansas Heart Hospital Encore AR
 Arot Health NY
 Artery and Vein Institute PA
 Asante Rogue Regional Medical Center OR
 Ascension Alexian Brothers Medical Center IL
 Ascension Borgess Hospital MI
 Ascension Genesys Hospital MI
 Ascension Mercy Hospital - Aurora IL
 Ascension Providence Hospital (TX) TX
 Ascension Providence Hospital, Novi Campus MI
 Ascension Providence Hospital, Southfield Campus MI
 Ascension Resurrection Medical Center IL
 Ascension Sacred Heart Hospital Bay FL
 Ascension Saint Alexius Medical Center IL
 Ascension Saint Joseph Hospital - Joliet IL
 Ascension Saint Thomas Midtown Hospital TN
 Ascension Saint Thomas Rutherford Hospital TN
 Ascension Saint Thomas West Hospital TN
 Ascension Seton Hays TX
 Ascension Seton Medical Center Austin TX
 Ascension Seton Williamson TX
 Ascension St. John OK
 Ascension St. John Hospital MI
 Ascension St. Mary's Hospital MI
 Ascension Via Christi Hospitals Wichita KS
 Ashland Hospital Corporation d/b/a King's Daughters Medical Center KY
 Aspirus Wausau Hospital, Inc. WI
 Associates in Vascular Care NJ
 AtlantiCare Regional Medical Center NJ
 Atrium Health Cabarrus NC
 Atrium Health Pineville NC
 Atrium Health Union NC
 Augusta University Medical Center, Inc. GA
 Aultman Hospital OH
 Aurora BayCare Medical Center WI
 Aurora Medical Center Grafton WI
 Aurora Medical Center Kenosha WI
 Aurora Medical Center Manitowoc County WI
 Aurora Medical Center Oshkosh WI
 Aurora Medical Center Summit WI
 Aurora Medical Center Washington County WI
 Aurora Memorial Hospital Burlington WI
 Aurora Sheboygan Memorial Medical Center WI
 Aurora Sinai Medical Center WI
 Aurora St. Luke's Medical Center WI
 Aurora St. Luke's South Shore WI
 Aurora West Allis WI
 Avera Heart Hospital of South Dakota SD
 Avera McKennan Hospital SD
 Backus Hospital CT
 Bakersfield - Bakersfield Memorial Hospital CA
 Baltimore Washington Medical Center MD
 Banner Del E. Web Medical Center AZ
 Banner Desert Medical Center AZ
 Banner Heart Hospital AZ
 Banner-University Medical Center Phoenix AZ
 Banner-University Medical Center Tucson AZ
 Baptist Health Deaconess Madisonville, Inc. KY
 Baptist Health Lexington KY
 Baptist Health Louisville KY
 Baptist Health Medical Center - Little Rock AR
 Baptist Health Medical Center - North Little Rock AR
 Baptist Health Paducah KY
 Baptist Hospital of Miami FL
 Baptist Memorial Hospital TN
 Barnes Jewish Hospital MO
 Bartow Regional Medical Center FL
 Bassett Medical Center NY
 Baton Rouge General LA
 Baxter Regional Medical Center AR
 Bayfront Health Seven Rivers FL
 Bayhealth Medical Center DE
 Baylor All Saints Medical Center TX
 Baylor Jack and Jane Hamilton Heart and Vascular Hospital TX
 Baylor Scott & White Medical Center - Irving TX
 Baylor Scott & White Medical Center - McKinney TX
 Baylor Scott & White Medical Center - Round Rock TX
 Bayshore Medical Center NJ
 Baystate Medical Center MA
 Beauport Memorial Hospital SC
 Beebe Medical Center DE
 Bellin Memorial Hospital, Inc. WI
 Berkeley Medical Center WV
 Berkshire Medical Center MA
 Beth Israel Deaconess Medical Center MA
 Beth Israel Medical Center NY
 Bethesda Hospital East FL
 Bethesda Hospital West FL
 Bethesda North Hospital OH
 Birmingham St. Vincent's East Hospital AL
 Bismarck - CHI St. Alexius Health ND
 Blake Medical Center FL
 Boca Raton Regional Hospital FL
 Bon Secours Maryview Medical Center VA
 Bon Secours Memorial Regional Medical Center VA
 Bon Secours St. Francis Medical Center VA
 Bon Secours St. Mary's Hospital VA
 Boston Medical Center MA
 Bridgeport Hospital CT
 Brigham and Women's Hospital MA
 Brockton Hospital MA
 Bronson Battlecreek Hospital MI
 Bronson Methodist Hospital MI
 Brooklyn Methodist Hospital NY
 Brookwood Baptist Medical Center AL
 Broward Health Medical Center FL
 Broward Health North Medical Center FL
 Bryan Medical Center NE
 BSA Hospital, LLC TX
 Buffalo General Medical Center NY
 Butler Memorial Hospital PA
 California Pacific Medical Center CA
 Camden Clark Medical Center WV
 Cape Canaveral Hospital FL
 Cape Cod Hospital MA
 Cape Coral Hospital FL
 Cape Fear Valley Health NC
 Capital Health Medical Center-Hopewell NJ
 Capital Health Regional Medical Center NJ
 Capital Region Medical Center MO
 Capital Regional Medical Center FL
 Cardiothoracic and Vascular Surgical Associates FL
 Carilion New River Valley Medical Center VA
 Carilion Roanoke Memorial Hospital VA
 Carle BromMenn Medical Center IL
 Carle Foundation Hospital IL
 Carle Health Methodist Hospital IL
 CarolinaEast Medical Center NC
 CaroMont Regional Medical Center NC
 Catawba Valley Medical Center NC
 Catholic Health Mercy Hospital of Buffalo NY
 Catholic Health Sister of Charity Hospital NY
 Catholic Medical Center: CTS/NH NH
 Cedars-Sinai Medical Center CA
 Centerpoint Medical Center MO
 CentraCare Health MN
 Central Maine Medical Center ME
 Central Washington Health Services Association WA
 CGH Medical Center IL
 Chandler - Chandler Regional Medical Center AZ
 Charleston Area Medical Center WV
 Charlton Memorial Hospital MA
 Chattanooga - CHI Memorial Hospital TN
 Chesapeake Regional Medical Center VA
 Chester County Hospital PA
 Chippenham Hospital VA
 Christiana Care DE
 Christus Highland Medical Center LA
 CHRISTUS Ochsner St. Patrick Hospital LA
 Christus St. Michael Hospital TX
 Christus Trinity Mother Frances Hospital TX
 CHUM QC
 CISSSO Outaouais QC
 Cleveland Clinic OH
 Cleveland Clinic Akron General OH
 Cleveland Clinic Florida - Weston Hospital FL
 Cleveland Clinic Martin North Hospital FL
 Cleveland Clinic Tradition Hospital FL
 Clinton Memorial Hospital OH
 Coastal Vascular & Interventional, PLLC FL
 Coastal Vein and Vascular Specialists FL
 Cobb Hospital GA
 Coffee Regional Medical Center GA
 Columbia St. Mary's Hospital Milwaukee, Inc. WI
 Columbia St. Mary's Hospital Ozaukee, Inc. WI
 Columbia Surgical Services, Inc. MO
 Columbia University Irving Medical Center NY
 Columbus Regional Hospital IN
 Community Heart and Vascular Hospital IN
 Community Hospital Anderson IN
 Community Hospital East IN
 Community Hospital North IN
 Community Hospital South IN
 Community Howard Regional Hospital IN
 Community Regional Medical Center CA
 Concord Hospital NH
 Cone Health NC
 Cookeville Regional Medical Center TN
 Cooper University Hospital NJ
 Coral Gables Hospital FL
 Corewell Health Dearborn Hospital MI
 Corewell Health Farmington Hills Hospital MI
 Corewell Health William Beaumont University Hospital MI
 Corporación Centro Cardiovascular de Puerto Rico y del Caribe PR
 Corpus Christi Medical Center TX
 Covenant Healthcare MI
 Covenant Health-Grey Nuns Hospital AB
 Covenant Medical Center TX
 Cox Medical Center South MO
 Crouse Hospital NY
 Danbury Hospital CT
 Dartmouth Hitchcock Medical Center NH
 DCH Regional Medical Center AL
 Deaconess Midtown Hospital IN
 Deborah Heart and Lung Center NJ
 Decatur Memorial Hospital IL
 Decatur Morgan Hospital AL
 Dell Seton Medical Center at the University of Texas TX
 Delray Medical Center FL
 Desert Regional Medical Center CA
 DLP Conemaugh Memorial Medical Center, LLC PA
 Doctors Hospital OH
 Doctors Hospital at Renaissance TX
 Doctors Hospital of Augusta GA
 Doctors Hospital of Sarasota FL
 Doylestown Hospital PA
 Dr. Ricardo Vasquez, MD IN
 Duke University Medical Center NC
 East Alabama Medical Center AL
 East Jefferson General Hospital LA
 East Tremont Vascular Health Care, PLLC NY
 Eden Medical Center CA
 Edward Hospital IL
 Einstein Medical Center Montgomery PA
 Eisenhower Medical Center CA
 El Camino Health CA
 Elkhart General Hospital IN
 Elliot Health System NH
 Ellis Hospital NY
 Elmbrook Memorial WI
 Elmhurst Memorial Hospital IL
 Emanate Health Inter-Community Hospital CA
 Emanate Health Queen of the Valley Hospital CA
 Emory St. Joseph's Hospital GA
 Emory University Hospital GA
 Englewood Hospital and Medical Center NJ
 Essentia Health - Fargo ND
 Essentia Health - St. Mary's Medical Center MN
 Evangelical Community Hospital PA
 Evansville Surgical Associates IN
 Exeter Hospital NH
 Fairfield Medical Center OH
 Fairview Southdale Hospital MN
 Fairview St. John's Hospital MN
 Faith Regional Health Services NE
 Fawcett Memorial Hospital FL
 Federal Way - St. Francis Hospital WA
 Firelands Regional Medical Center OH
 Flagler Hospital FL
 Flagstaff Medical Center AZ
 Flint Hills Heart, Vascular, Vein Clinic, LLC KS
 Florida Hospital Zephyrhills FL
 Floyd Medical Center GA
 Forrest General Hospital Vascular Services MS
 Fort Sanders Regional Medical Center TN
 Fox Valley Surgical Associates Ltd. WI
 Franciscan Health Indianapolis IN
 Franciscan Health Lafayette East IN
 Franklin Hospital WI
 Fresno Heart & Surgical Hospital CA
 Froedtert Health WI
 Galion Hospital OH
 Geisinger Community Medical Center PA
 Geisinger Medical Center PA
 Geisinger Wyoming Valley Medical Center PA
 Genesis Hospital OH
 Genesis Medical Center, Davenport IA
 Glens Falls Hospital NY
 Global Neuroscience Institute at Crozer PA
 Good Samaritan Hospital OH
 Good Samaritan Hospital - San Jose CA
 Good Samaritan Hospital Medical Center NY
 Good Samaritan Hospital of Suffern, N.Y. NY
 Goshen Hospital IN
 Gottlieb Memorial Hospital IL
 Grady Memorial Hospital OH
 Grady Memorial Hospital (GA) GA
 Grant Medical Center OH
 Great River Medical Center IA
 Griffin Hospital CT
 Gulf Coast Medical Center FL
 Gulf Coast Regional Medical Center FL
 Guthrie Clinic PA
 Hackensack University Medical Center NJ
 Halifax Hospital Medical Center FL
 Halifax Infirmary Robie Street Entrance - QEII NS
 Harborview Medical Center WA
 Harlingen Medical Center TX
 Hartford Hospital CT
 HCA Florida Aventura Hospital FL
 HCA Florida Brandon Hospital FL
 HCA Florida Fort Walton-Destin Hospital FL
 HCA Florida Lawnwood Hospital FL
 HCA Florida Northside Hospital FL
 HCA Florida South Tampa Hospital FL
 HCA Houston Healthcare Clear Lake TX
 HCA Houston Healthcare Conroe TX
 HCA Houston Healthcare Kingwood TX
 HCA Houston Healthcare Medical Center TX
 HCA Houston Healthcare North Cypress TX
 HCA Houston Healthcare Northwest TX
 HCA Houston Healthcare Southeast TX
 HCA Houston Healthcare West TX
 Health Park Medical Center FL
 HealthPartners, Inc. MN
 Heart Care Consultants, LLC PA
 Heart Hospital of Austin TX
 Henrico Doctors' Hospital VA
 Henry Ford Allegiance Health MI
 Henry Ford Hospital, Detroit MI MI
 Henry Ford Hospital, West Bloomfield MI MI
 Henry Ford Macomb Hospital MI
 Heritage Valley Beaver PA
 Hill Country Memorial Hospital TX
 Hillcrest Hospital South OK
 Hilo Medical Center HI
 Hoag Memorial Hospital Presbyterian CA

APPENDIX A– VQI SITES LISTED IN ALPHABETICAL ORDER (AS OF 5/1/2023)

Holmes Regional Medical Center FL
 Holston Valley Medical Center TN
 Holy Cross Hospital FL
 Holy Name Medical Center NJ
 HonorHealth Deer Valley Medical Center AZ
 HonorHealth Scottsdale Osborn Medical Center AZ
 HonorHealth Scottsdale Thompson Peak Medical Center AZ
 Houston – Baylor St. Luke’s Medical Center TX
 Houston Methodist Baytown Hospital TX
 Houston Methodist Clear Lake Hospital TX
 Houston Methodist Hospital TX
 Houston Methodist Sugar Land Hospital TX
 Houston Methodist The Woodlands Hospital TX
 Houston Methodist West Hospital TX
 Houston Methodist Willowbrook Hospital TX
 Huntington Hospital CA
 Idaho Falls Community Hospital ID
 Indiana Regional Medical Center PA
 Inova Alexandria Hospital VA
 Inova Fair Oaks Hospital VA
 Inova Fairfax Hospital VA
 Inova Loudoun Hospital VA
 Inova Mount Vernon Hospital VA
 INTEGRIS Baptist Medical Center, Inc. OK
 Intermountain Medical Center UT
 IU Health – Arnett Hospital IN
 IU Health – Ball Memorial Hospital IN
 IU Health – Bloomington Hospital IN
 IU Health – Methodist IN
 IU Health – Saxony Hospital IN
 IU Health – West Hospital IN
 Jackson Madison County General Hospital TN
 Jackson Memorial Hospital FL
 Jane Phillips Medical Center OK
 Javon Bea Hospital – Riverside Campus IL
 Jersey Shore University Medical Center NJ
 JFK Medical Center NJ
 Jobst Vascular Institute OH
 John Sealy Hospital, UTMB TX
 Johns Hopkins Bayview Medical Center MD
 Johnson City Medical Center TN
 Johnston–Willis Hospital VA
 Kadlec Regional Medical Center WA
 Kansas Heart Hospital KS
 Kaweah Delta Medical Center CA
 Kennedy University Hospital NJ
 Kennestone Hospital GA
 Kent Hospital RI
 Kettering Health Dayton OH
 Kettering Health Hamilton OH
 Kettering Health Main Campus OH
 Kootenai Health ID
 Lakeland Regional Medical Center FL
 Lakeview Regional Medical Center LA
 Lancaster General Hospital PA
 Largo Medical Center FL
 Lawrence + Memorial Hospital CT
 Legacy Health OR
 Lehigh Valley Hospital PA
 Lenox Hill Hospital NY
 LewisGale Medical Center VA
 Lexington – Saint Joseph Hospital KY
 Lexington Medical Center SC
 Licking Memorial Hospital OH
 Lincoln – CHI Health Nebraska Heart NE
 Little Rock – CHI St. Vincent’s Infirmary AR
 Loma Linda University Medical Center CA
 Long Island Jewish Medical Center NY
 Los Alamitos Medical Center CA
 Los Angeles County Harbor – UCLA Medical Center CA
 Los Robles Medical Center CA
 Lovelace Medical Center NM
 Loyola University Medical Center IL
 Lutheran Medical Center CO
 Lyerly Baptist Neurosurgery FL
 Lynchburg General Hospital VA
 M Health Fairview Clinic – Woodwinds MN
 MacNeal Hospital IL
 Maimonides Medical Center NY
 Main Line Health’s subsidiary – Riddle Hospital PA
 Main Line Health’s subsidiary, Main Line Hospitals, Inc. – Bryn Mawr Hospital PA
 Main Line Health’s subsidiary, Main Line Hospitals, Inc. – Paoli Hospital PA
 Maine Medical Center ME
 MaineGeneral Medical Center ME
 Manatee Memorial Hospital FL
 Mansfield Hospital OH
 Margaret R. Pardee Memorial Hospital NC
 Marietta Memorial Hospital OH
 Marin General Hospital CA
 Marion General Hospital OH
 Marshall Medical North AL
 Marshall Medical South AL
 Marshfield Clinic Health System, Inc. WI
 Mary Washington Hospital VA
 Massachusetts General Hospital MA
 Maury Regional Medical Center TN
 Mayo Clinic Arizona AZ
 Mayo Clinic Florida FL
 Mayo Clinic Health System – Franciscan Healthcare, Inc. (in La Crosse) WI
 Mayo Clinic Health System – Mankato MN
 Mayo Clinic Hospital – Rochester MN
 Mayo Clinic Northwest Wisconsin WI
 McKay–Dee Hospital UT
 McKenzie–Willamette Medical Center OR
 McLaren Bay Region MI
 McLaren Flint MI
 McLaren Greater Lansing MI
 McLaren Macomb MI
 McLaren Northern Michigan MI
 McLaren Port Huron MI
 McLeod Health SC
 Mease Countryside Hospital FL
 Medical Center Hospital TX
 Medical Center Navicent Healthcare GA
 Medical Center of Trinity FL
 Medical City Dallas TX
 Medical City Denton TX
 Medical City Fort Worth TX
 Medical City Plano TX
 Medical Faculty Associates, Inc DC
 Medical University Hospital Authority SC
 Medstar Cardiology Associates DC
 Medstar Franklin Square Medical Center MD
 Medstar Georgetown University Hospital DC
 Medstar Good Samaritan Hospital MD
 Medstar Harbor Hospital MD
 Medstar Montgomery Medical Center MD
 Medstar Southern Maryland Hospital Center MD
 Medstar Union Memorial Hospital MD
 Medstar Washington Hospital Center DC
 Memorial Health University Medical Center GA
 Memorial Hermann Cypress Hospital TX
 Memorial Hermann Greater Heights Hospital TX
 Memorial Hermann Katy Hospital TX
 Memorial Hermann Memorial City Medical Center TX
 Memorial Hermann Northeast Hospital TX
 Memorial Hermann Southeast Hospital TX
 Memorial Hermann Southwest Hospital TX
 Memorial Hermann Sugar Land TX
 Memorial Hermann Texas Medical Center TX
 Memorial Hermann The Woodlands TX
 Memorial Hospital at Gulfport MS
 Memorial Hospital Belleville IL
 Memorial Hospital Central CO
 Memorial Hospital Jacksonville FL
 Memorial Hospital of Laramie County d/b/a Cheyenne Regional Medical Center WY
 Memorial Hospital of South Bend IN
 Memorial Hospital Pembroke FL
 Memorial Hospital West FL
 Memorial Medical Center IL
 Memorial Medical Center – Modesto CA
 Memorial Regional Hospital FL
 Memorialcare Long Beach Medical Center CA
 Memorialcare Orange Coast Medical Center CA
 Memorialcare Saddleback Medical Center CA
 Menorah Medical Center KS
 Mercy Fitzgerald PA
 Mercy Health – Anderson Hospital OH
 Mercy Health – Fairfield Hospital OH
 Mercy Health – Lourdes Hospital KY
 Mercy Health – St. Elizabeth Youngstown Hospital OH
 Mercy Health – The Jewish Hospital OH
 Mercy Health – West Hospital OH
 Mercy Health Muskegon Hospital MI
 Mercy Health Saint Mary’s MI
 Mercy Health St. Rita’s Medical Center OH
 Mercy Hospital (Allina) MN
 Mercy Hospital South MO
 Mercy Hospital Springfield MO
 Mercy Hospital St. Louis MO
 Mercy Medical Center MD
 Mercy Medical Center, Cedar Rapids, Iowa IA
 MercyOne Des Moines Medical Center IA
 MercyOne Siouxland Medical Center IA
 Meritus Medical Center MD
 Methodist Dallas Medical Center TX
 Methodist Germantown Hospital TN
 Methodist Richardson Medical Center TX
 Methodist University Hospital TN
 MetroHealth Medical Center OH
 Miami Vein Center FL
 Michigan Vascular Center MI
 Middlesex Hospital CT
 MidHudson Regional Hospital NY
 Midland Memorial Hospital TX
 MidState Medical Center CT
 Midwest Aortic & Vascular Institute, P.C. MO
 Midwest Institute Minimally Invasive Therapies IL
 Mission Hospital NC
 Mission Hospital–Mission Viejo CA
 Mobile Infirmary AL
 Monongalia County General Hospital Company d/b/a Mon Health Medical Center WV
 Montefiore Medical Center NY
 Monument Health Rapid City Hospital, Inc. SD
 Morristown Medical Center NJ
 Morton Plant Hospital FL
 Morton Plant North Bay Hospital FL
 Mosaic Life Care MO
 Mount Auburn Hospital MA
 Mount Carmel East Hospital OH
 Mount Carmel Grove City Hospital OH
 Mount Carmel St. Ann’s Hospital OH
 Mount Nittany Medical Center PA
 Mount Sinai Hospital NY
 Mount Sinai Medical Center FL
 MultiCare Deaconess Hospital WA
 MultiCare Good Samaritan Hospital WA
 MultiCare Tacoma General Hospital WA
 Munson Medical Center MI
 Murray Calloway County Hospital KY
 MUSC Health Columbia Medical Center SC
 MUSC Health Florence Medical Center SC
 MyMichigan Health – Midland MI
 Naples Community Hospital FL
 Nazareth Hospital PA
 NEA Baptist Memorial Hospital AK
 Nebraska Medicine NE
 Nebraska Methodist Hospital NE
 New Hanover Regional Medical Center NC
 Newark Beth Israel Medical Center NJ
 Newton–Wellesley Hospital MA
 North Alabama Medical AL
 North Florida Regional Medical Center FL
 North Fulton Hospital, Inc. GA
 North Memorial Health Hospital MN
 North Mississippi Medical Center MS
 North Okaloosa Medical Center FL
 North Shore University Hospital NY
 NorthBay Medical Center CA
 Northeast Georgia Medical Center Gainesville GA
 NorthShore Hospital IL
 Northside Hospital Atlanta GA
 Northside Hospital Cherokee GA
 Northside Hospital Forsyth GA
 Northside Hospital Gwinnett GA
 Northwest Community Hospital IL
 Northwestern Medicine Central DuPage Hospital IL
 Northwestern Medicine Lake Forest Hospital IL
 Northwestern Memorial Hospital IL
 Norton–Audubon KY
 Norton–Brownsboro Hospital KY
 Norton–Downtown KY
 Norwalk Hospital CT
 Novant Health Forsyth Medical Center NC
 Novant Health Matthews Medical Center NC
 Novant Health Presbyterian Medical Center NC
 NYU Langone Hospital – Brooklyn NY
 NYU Langone Hospital – Long Island NY
 NYU Langone Medical Center NY
 Oaklawn Hospital MI
 Ocala Regional Medical Center FL
 Ocean Medical Center NJ
 Ochsner Lafayette General Medical Center LA
 Ochsner Medical Center LA
 Ogden Regional Medical Center UT
 Oklahoma Heart Hospital South, LLC OK
 Oklahoma Heart Hospital, LLC OK
 Oklahoma Heart Institute at Hillcrest Medical Center OK
 Omaha – CHI Health Creighton University Medical Center – Bergan Mercy NE
 Omaha – CHI Health Immanuel NE
 Orange Regional Medical Center NY
 Oregon Health & Science University OR
 Oregon Vascular Specialists, LLC OR
 Orlando Health, Inc. Dr. P. Phillips Hospital FL
 Orlando Health, Inc. Health Central Hospital FL
 Orlando Health, Inc. Orlando Regional Medical Center FL
 Orlando Health, Inc. South Lake Hospital FL
 Orlando Health, Inc. South Seminole Hospital FL
 OSF Heart of Mary Medical Center IL
 OSF Saint Anthony Medical Center IL
 OSF Saint Francis Medical Center IL
 OSF St. Joseph Medical Center IL
 OU Medical Center OK
 Our Lady of Lourdes Heart Hospital LA
 Our Lady of Lourdes Memorial NY
 Our Lady of Lourdes Regional Medical Center LA
 Our Lady of the Lake Hospital, Inc. LA
 Overlake Medical Center WA
 Overlook Hospital NJ
 Owensboro Health Regional Hospital KY
 Oxnard – St. John’s Regional Medical Center CA
 Palm Beach Gardens Medical Center FL
 Palo Alto Medical Foundation CA
 Parkview Medical Center CO
 Parkview Regional Medical Center IN
 Parkwest Medical Center TN
 PeaceHealth Riverbend Medical Center OR
 PeaceHealth Southwest Medical Center WA
 PeaceHealth St. Joseph Medical Center WA
 Penn Medicine Princeton Health NJ
 Penn Presbyterian Medical Center PA
 Penn State Health Holy Spirit Medical Center PA
 Penn State Health Milton S. Hershey Medical Center PA
 Penn State Health St. Joseph’s Medical Center PA
 Penn State Health, Lancaster PA
 Pennsylvania Hospital PA
 Peripheral Vascular Associates TX
 Peter Loughheed Centre AB
 Phoebe Putney Memorial Hospital GA
 Phoenix – St. Joseph’s Hospital and Medical Center AZ
 Piedmont Athens Regional Medical Center GA
 Piedmont Hospital GA
 Pikeville Medical Center KY
 Pima Vascular AZ
 PineHurst Surgical NC
 Placentia–Linda Hospital CA
 Porter Adventist Hospital CO
 Portneuf Medical Center ID
 Portsmouth Regional Hospital NH
 Pottstown Hospital PA
 Premier Vascular, LLC IL
 Presbyterian Hospital NM
 Presbyterian/St. Luke’s Medical Center CO
 Prescott – Yavapai Regional Medical Center AZ
 Princeton Baptist Medical Center AL
 Prisma Health Richland SC
 Providence Alaska Medical Center AK
 Providence Holy Cross Medical Center CA
 Providence Hospital – Rochester MI
 Providence Hospital (AL) AL
 Providence Little Company of Mary–Torrance CA
 Providence Medford Medical Center OR
 Providence Portland Medical Center OR
 Providence Regional Medical Center Everett WA
 Providence Sacred Heart Medical Center WA
 Providence St. Joseph Medical Center CA
 Providence St. Jude Fullerton CA
 Providence St. Mary Medical Center (WA) WA
 Providence St. Peter Hospital WA
 Providence St. Vincent Medical Center OR
 Providence Tarzana Medical Center CA
 Queens NY
 Radiology Associates–Fox Valley WI
 Raleigh General Hospital WV
 Rapides Regional Medical Center LA
 Redlands Community Hospital CA
 Redmond Regional Medical Center GA

APPENDIX A– VQI SITES LISTED IN ALPHABETICAL ORDER (AS OF 5/1/2023)

Redwood City – Sequoia Hospital CA
 Regional Medical Centers of Orangeburg and Calhoun Counties SC
 Reid Health IN
 Reston Hospital Center VA
 Rex Hospital, Inc. NC
 Rhode Island Hospital RI
 Riverside Community Hospital CA
 Riverside Medical Center IL
 Riverside Methodist Hospital OH
 Riverside Regional Medical Center VA
 Riverview Medical Center NJ
 Rockledge Regional Medical Center FL
 Roper St. Francis SC
 Roseburg – CHI Mercy Health Medical Center OR
 Rush University Medical Center IL
 Rutgers, The State University of New Jersey for Robert Wood Johnson Medical School NJ
 Sacred Heart Emerald Coast FL
 Sacred Heart Hospital of the Hospital Sisters of the Third Order of St. Francis WI
 Sacred Heart Pensacola FL
 Saint Alphonsus Regional Medical Center ID
 Saint Barnabas Medical Center NJ
 Saint Francis Hospital and Medical Center CT
 Saint Francis Hospital Memphis TN
 Saint Joseph Hospital CO
 Saint Joseph Regional Medical Center–South Bend Campus IN
 Saint Joseph’s Hospital GA
 Saint Luke’s Episcopal Presbyterian Hospital MO
 Saint Luke’s Hospital of Kansas City MO
 Saint Luke’s Memorial Hospital PR
 Saint Mary’s Regional Medical Center NV
 Salem Health OR
 Salem Hospital MA
 San Antonio Vascular and Endovascular Clinic TX
 San Bernardino – St. Bernardine Medical Center CA
 San Diego Vascular Center CA
 San Luis Obispo – French Hospital Medical Center CA
 Sanford Bemidji Medical Center MN
 Sanford Clinic Vascular Associates SD
 Sanford Medical Center Fargo ND
 Sanger Heart and Vascular Institute NC
 Santa Clara Valley Medical Center CA
 Santa Cruz – Dominican Hospital CA
 Santa Rosa Memorial CA
 Sarasota Memorial Hospital FL
 Sarasota Memorial Hospital – Venice Campus FL
 Scott & White Memorial Hospital TX
 Scripps Green Hospital CA
 Scripps Memorial Hospital Encinitas CA
 Scripps Memorial Hospital La Jolla CA
 Seattle – Virginia Mason Medical Center WA
 Seattle Vascular Surgery WA
 Self Regional Health SC
 Sentara Careplex Hospital VA
 Sentara Leigh Hospital VA
 Sentara Martha Jefferson VA
 Sentara Norfolk General Hospital VA
 Sentara Northern Virginia Medical Center VA
 Sentara Obici Hospital VA
 Sentara Princess Anne Hospital VA
 Sentara RMH Medical Center VA
 Sentara Virginia Beach General Hospital VA
 Sentara Williamsburg Regional Medical Center VA
 Shannon Medical Center TX
 Sharp Grossmont Hospital CA
 Sharp Memorial Hospital CA
 Shelby Baptist Medical Center AL
 Sierra Vista Regional Medical Center CA
 Silverdale – St. Michael Medical Center WA
 Singapore General Hospital N/A
 Slidell Memorial Hospital LA
 South Bay Hospital FL
 South Florida Baptist FL
 South Georgia Medical Center GA
 South Miami Hospital FL
 Southeast Georgia Health System, Inc. – Brunswick Campus GA
 Southern Hills Hospital and Medical Center NV
 Southern Ocean Medical Center NJ
 Southside Hospital NY
 Southwest Healthcare System CA
 Sparrow Hospital MI
 Spartanburg Regional SC
 Spectrum Health Hospital MI
 Spotsylvania Regional Medical Center VA
 Springhill Medical Center AL
 SSM Health DePaul Hospital – St. Louis MO
 SSM Health Good Samaritan – Mount Vernon, IL IL
 SSM Health Saint Louis University Hospital MO
 SSM Health St. Agnes Hospital – Fond du Lac, WI WI
 SSM Health St. Clare Hospital – Fenton MO
 SSM Health St. Joseph Hospital – St. Charles MO
 SSM Health St. Mary’s Hospital – Madison WI
 SSM St. Anthony Hospital OK
 St. Agnes Hospital MD
 St. Anthony Community Hospital NY
 St. Anthony Lakewood CO
 St. Anthony’s Hospital–FL FL
 St. Bernards Medical Center AR
 St. Charles Health System, Inc. OR
 St. Charles Hospital NY
 St. Clair Hospital PA
 St. David’s Medical Center TX
 St. David’s North Austin Medical Center TX
 St. David’s Round Rock Medical Center TX
 St. David’s South Austin Medical Center TX
 St. Dominic’s Memorial Hospital and Medical Associates MS
 St. Elizabeth Medical Center IA
 St. Elizabeth’s Medical Center WI
 St. Francis Hospital NY
 St. Francis Hospital – Milwaukee WI
 St. Francis Hospital – Wilmington DE
 St. Francis Hospital Downtown SC
 St. George Regional Hospital UT
 St. John Macomb Oakland MI
 St. John’s Health Center CA
 St. John’s Hospital IL
 St. Joseph – Orange CA
 St. Joseph Hospital (Eureka) CA
 St. Joseph Medical Center MO
 St. Joseph Mercy Health System MI
 St. Joseph’s Hospital North FL
 St. Joseph’s Hospital South FL
 St. Joseph’s Hospital–FL FL
 St. Luke’s Boise Medical Center ID
 St. Luke’s Campus NY
 St. Luke’s Hospital MA
 St. Luke’s Hospital – Allentown Campus PA
 St. Luke’s Hospital – Bethlehem Campus PA
 St. Luke’s Hospital – MN MN
 St. Luke’s Hospital – Monroe Campus PA
 St. Luke’s Hospital – Upper Buck Campus PA
 St. Luke’s Hospital – Warren Campus NJ
 St. Luke’s Magic Valley Hospital ID
 St. Luke’s Methodist Hospital IA
 St. Luke’s–Roosevelt Hospital Center NY
 St. Mary Corwin Medical Center CO
 St. Mary Medical Center PA
 St. Mary Medical Center (CA) CA
 St. Mary Medical Center–Hobart IN
 St. Mary Mercy Livonia MI
 St. Mary’s Hospital CO
 St. Mary’s Hospital – Waterbury CT
 St. Mary’s Hospital, Decatur, of the Hospital Sisters of the Third Order of St. Francis IL
 St. Mary’s Medical Center (WV) WV
 St. Patrick Hospital MT
 St. Peter’s Hospital NY
 St. Vincent Anderson IN
 St. Vincent Evansville IN
 St. Vincent Healthcare MT
 St. Vincent Heart Center of Indiana, LLC IN
 St. Vincent Hospital and Health Center, Inc. IN
 St. Vincent Hospital of the Hospital Sisters of the Third Order of St. Francis WI
 St. Vincent’s Birmingham AL
 St. Vincent’s Medical Center CT
 St. Vincent’s Medical Center – Clay County FL
 St. Vincent’s Medical Center–Riverside FL
 St. Vincent’s Medical Center–Southside FL
 Stafford Hospital VA
 Stamford Hospital CT
 Stanford Health Care CA
 Stanford Health Care–ValleyCare CA
 Staten Island University Hospital – North Site NY
 Steward Good Samaritan Medical Center, Inc. MA
 Steward St. Anne’s Hospital Corporation MA
 Steward Trumbull Memorial Hospital, Inc. OH
 Stockton – St. Joseph’s Medical Center CA
 Stony Brook University Medical Center NY
 Straub Medical Center HI
 Suburban Hospital MD
 Summa Health System OH
 Superior Vein Care, PLLP ID
 Surgical Specialists of Central Florida FL
 Sutter Medical Center Sacramento CA
 Sutter Roseville Medical Center CA
 SW General Health Center OH
 Swedish Cherry Hill WA
 Swedish First Hill WA
 Tacoma – St. Joseph Medical Center WA
 Tallahassee Memorial HealthCare, Inc FL
 Tampa General Hospital FL
 Tenet Florida Physicians Services FL
 Terre Haute Regional Hospital IN
 Terrebonne General Medical Center LA
 Texas Health Harris Methodist Fort Worth TX
 Texas Health Presbyterian Hospital Dallas TX
 Texas Health Presbyterian Hospital Denton TX
 Texas Health Resources Plano TX
 The Christ Hospital OH
 The Heart Hospital Baylor Denton TX
 THE HEART HOSPITAL Baylor Plano TX
 The Hospital Of Central Connecticut CT
 The Johns Hopkins Hospital MD
 The Medical Center at Bowling Green KY
 The Miriam Hospital RI
 The Reading Hospital and Medical Center PA
 The University of California Irvine CA
 The University of California San Diego Medical Center CA
 The University of Southern California on behalf of its Keck Medicine of USC CA
 The University of Texas Southwestern Medical Center TX
 The University of Texas Southwestern Medical Center – Cerebrovascular Group TX
 The Valley Hospital NJ
 The Vascular Care Group MA
 The Vein and Vascular Institute of Tampa Bay FL
 Thomas Jefferson University Hospital PA
 Three Crosses Regional Hospital NM
 Thunder Bay Regional Health Science Center ON
 TidalHealth Guerrieri Heart and Vascular Institute MD
 Tift Regional Medical Center GA
 Toronto General Hospital ON
 Torrance Memorial Medical Center CA
 Trident Medical Center SC
 TriStar Centennial Medical Center TN
 TriStar Summit Medical Center TN
 Tucson Medical Center AZ
 Tufts Medical Center MA
 Turkey Creek Medical Center TN
 Tyler Regional Hospital TX
 U of Texas Health Science Center, San Antonio TX
 UC Davis Health System CA
 UCLA Ronald Reagan Medical Center CA
 UCSF Medical Center CA
 UH Elyria Medical Center OH
 UH St. John Medical Center OH
 UK HealthCare KY
 UMass Memorial Medical Center, Inc. MA
 UMC El Paso Healthcare, Inc. TX
 United Health Services Hospitals, Inc. NY
 United Hospital (Allina) MN
 United Hospital Center WV
 UnityPoint Health – Meriter Hospital WI
 UnityPoint Health Des Moines IA
 University Hospitals Ahuja Medical Center OH
 University Hospitals Cleveland Medical Center OH
 University Of Alabama Medical Center AL
 University of Arkansas for Medical Sciences AR
 University of Chicago Medical Center IL
 University of Cincinnati Medical Center, LLC OH
 University of Colorado, Denver CO
 University of Colorado, North Vascular Services CO
 University of Connecticut Health Center CT
 University of Florida, Gainesville FL
 University of Iowa Hospitals and Clinics IA
 University of Kansas Hospital Authority KS
 University of Maryland Medical Center MD
 University of Miami Hospital and Clinics FL
 University of Michigan MI
 University of Minnesota Medical Center (UMMC) MN
 University of Mississippi Medical Center MS
 University of Missouri Medical Center MO
 University of New Mexico NM
 University of North Carolina Hospitals NC
 University of Oklahoma School of Community Medicine OK
 University of Pennsylvania PA
 University of Rochester Medical Center NY
 University of Tennessee Medical Center TN
 University of Utah Hospital and Clinics UT
 University of Vermont Medical Center VT
 University of Virginia Health System VA
 University of Washington Medical Center (Montlake Campus) WA
 University, of Washington Medical Center (Northwest Campus) WA
 Univ. of Wisconsin Hospitals and Clinics Authority WI
 University Surgical Associates TN
 UofL Health – Jewish Hospital KY
 UofL Health – Mary & Elizabeth Hospital KY
 UofL Health – Medical Center East KY
 UofL Health – University of Louisville Hospital KY
 UPMC Altoona PA
 UPMC Pinnacle Hanover PA
 UPMC Pinnacle Harrisburg PA
 UPMC Pinnacle Memorial PA
 UPMC Pinnacle West Shore PA
 UPMC Western Maryland MD
 UPMC Williamsport PA
 UPMC/Hamot Hospital PA
 UPP Vascular Surgery PA
 Upstate University Medical Center NY
 Utah Valley Hospital UT
 Valley Medical Center WA
 Valley Regional Medical Center TX
 Valley Vascular Consultants, P.C. AL
 Vanderbilt University Medical Center TN
 Vanguard Vascular and Vein PLLC TX
 Vascular Institute of Chattanooga, PLLC TN
 Vascular Institute of Michigan MI
 Vascular Surgery Associates FL
 Vascular Surgery Associates, LLC MD
 Vassar Brothers Medical Center NY
 VCU Health System Authority VA
 Verde Valley Medical Center AZ
 VHS of Arrowhead, Inc. d/b/a Abrazo Arizona Heart Hospital AZ
 Via Christi Hospital Pittsburg KS
 Vidant Medical Center NC
 Virtua Marlton Hospital NJ
 Virtua Mount Holly Hospital NJ
 Virtua Our Lady of Lourdes Hospital NJ
 VVAS – Varicose Vein and Aesthetic Solutions AZ
 Wadley Regional Medical Center TX
 Wake Forest University Baptist Health Medical Center NC
 WakeMed Health & Hospitals–Cary Campus NC
 WakeMed Health & Hospitals–Raleigh Campus NC
 Washington Hospital Health System CA
 Washington Regional Medical Center AR
 Waterbury Hospital CT
 Waukesha Memorial Hospital WI
 Wayne UNC Healthcare NC
 Weill Cornell University Medical Center NY
 WellSpan Surgery Center PA
 WellSpan York Hospital PA
 West Jefferson Medical Center LA
 West Medical Center OH
 West Virginia University Hospital WV
 Westchester Medical Center NY
 Westmoreland Regional Hospital PA
 Wexner Medical Center OH
 Wheeling Hospital WV
 White Plains Hospital NY
 Williamson Medical Center TN
 Willis–Knighton North LA
 Winchester Hospital MA
 Winchester Medical Center VA
 Winter Haven Hospital FL
 Wooster Community Hospital OH
 Yale New Haven Hospital CT
 Yuma Regional Medical Center AZ

APPENDIX B– SOCIETY FOR VASCULAR SOCIETY PATIENT SAFETY ORGANIZATION (SVS PSO)

The Patient Safety and Quality Improvement Act of 2005 authorized the creation of Patient Safety Organizations (PSO) to improve the quality and safety of health care by the collection and analysis of patient data. It protects any comparative outcome analyses or other aggregated reports that is generated by a PSO from discovery in state and federal court. These analyses and reports, called Patient Safety Work Products (PSWP) can be used for quality improvement but not for disciplinary action against a provider. It allows patient identifiers to be collected, without specific IRB or patient approval. This permits a PSO to match patients with other data sources, such as the Social Security Death Index or Medicare claims data to evaluate long-term effectiveness of procedures in terms of mortality or complications. The identity of patients, hospitals, providers and other protected health information cannot be disclosed by a PSO, although non-identifiable data can be published for quality improvement research, adhering to both PSO and HIPAA requirements. SVS VQI embraced the use of a PSO to house its activities, because it provides substantially more security and protection than most registries.

VQI SUPPORTING SOCIETIES

American College of Cardiology*
American Venous Forum*
Canadian Society for Vascular Surgery
Eastern Vascular Society
Florida Vascular Society
Georgia Vascular Society
Michigan Vascular Society
Midwestern Vascular Surgical Society
New England Society for Vascular Surgery
New York Society for Vascular Surgery
Peripheral Vascular Surgery Society
Rocky Mountain Vascular Society
Society for Clinical Vascular Surgery
Society for Vascular Medicine*
Society for Vascular Ultrasound*
Southern Association for Vascular Surgery
Southern California Vascular Surgical Society
The American Heart Association*
Vascular Access Society of America*
Western Vascular Society

*Members of SVS PSO Governing Council

APPENDIX C–FIVOS CLINICAL PLATFORM

The SVS Vascular Quality Initiative is built on Fivos PATHWAYS® clinical registry platform, allowing users to track, measure, and analyze clinical information, promote collaboration, objectively drive decisions, and optimize performance.

PATHWAYS is a secure, cloud-based solution that enables physicians, institutions, clinical data managers, and researchers to collect, manage, analyze, and disseminate their clinical data to achieve optimal outcomes. Accessible by any computer with a compatible browser, PATHWAYS is designed to easily integrate into a variety of workflows by allowing multiple users to access and enter data on a single procedure form, and to spread the responsibilities of data entry to more than one individual. Authentication identifies users' roles and permissions to ensure appropriate access to content within PATHWAYS. Real-time data validation through error-trapping and alerts ensures that only high quality data is populated into the system. PATHWAYS has been designed to support large-scale quality improvement and research projects as dynamic content within registries can easily be added and/or modified.

About Fivos

Fivos offers specialty-based workflow reporting applications for providers, registry solutions and support for medical societies, and custom data sets for device manufacturers that provide real world evidence to advance innovation and regulatory goals.

At Fivos, we believe in healthcare IT innovation that enables proactive patient care and improves the quality of healthcare. Combining decades of industry experience, a thorough understanding of data science, and a large dose of curiosity, we are committed to empowering healthcare organizations to leverage data to create efficiencies, manage costs, and improve outcomes. For more information, visit www.fivoshealth.com



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