Virginia Vascular Study Group (VVSG)

April 28, 2022
12:00 PM – 4:00 PM ET
Hybrid
Meeting Attendance Credit

Before we get started, please sign in.

1. Click “Participants” in the box at the top or bottom of your screen.
2. If your full name is not listed, hover next to your name and you’ll see “rename”.
3. Click and sign in.

If you can’t sign in, please email Leka Johnson at ljohnson@svspso.org and let her know the identifier you were signed in under (ex –LM7832 or your phone number).

**SPECIAL NOTE: We do give credit to residents/fellows that don’t have a PATHWAYS user account!!!

Sign in with your Full name, MD, Name of Institution
Appreciation and Thanks

• Albeir Mousa, MD and Samantha Minc, MD - Regional Medical Directors
• Stacy Giardina and Rachelle Sapp - Regional Lead Data Managers
• Leila Murebee, MD - SVS PSO Associate Medical Director
• Kristopher Huffman - Director Analytics & Analytic Team
• Jennifer Correa – SVS PSO Marketing Manager
• Betsy Wymer - SVS PSO Director of Quality
• SVS PSO Staff
Site Profile

• Please routinely review your Center Characteristics for accuracy

• For those who have left your facility, please change their status to inactive and maintain current email addresses
# Agenda-Virginia's VSG April 28, 2022

<table>
<thead>
<tr>
<th>Time</th>
<th>Topic</th>
<th>CE Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>12:00 pm</td>
<td>Welcome</td>
<td>No</td>
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<tr>
<td>12:05 pm</td>
<td>Regional Data Review – Dr. Albeir Mousa &amp; Dr. Samantha Minc, VVSG Medical Directors&lt;br&gt; &lt;br&gt; <strong>Learning Objectives:</strong>&lt;br&gt; - Use the VQI regional reports to establish quality improvement goals for the vascular patients (outcomes) and for their center (process).&lt;br&gt; - Interpret and compare each centers’ VQI results to regional and national benchmarked data.&lt;br&gt; - Learn, through group discussion the VQI regional results to improve the quality of vascular health care by monitoring measurable performance indicators, SVS PSO evidence-based research, and outcomes.&lt;br&gt; - Identify high performing regional vascular centers to discuss variations in care and clinical practice patterns to improve outcomes and prompt quality improvement recommendations for vascular care patients. Sharing of best practices/pathways of care.</td>
<td>Yes</td>
</tr>
<tr>
<td>1:05 pm</td>
<td>Regional QI Proposal - Dr. Albeir Mousa &amp; Dr. Samantha Minc, VVSG Medical Directors&lt;br&gt; &lt;br&gt; <strong>Learning Objectives:</strong>&lt;br&gt; - Use the VQI regional reports to establish quality improvement goals for the vascular patients (outcomes) and for their center (process).&lt;br&gt; - Interpret and compare each centers’ VQI results to regional and national benchmarked data.&lt;br&gt; - Learn, through group discussion the VQI regional results to improve the quality of vascular health care by monitoring measurable performance indicators, SVS PSO evidence-based research, and outcomes.&lt;br&gt; - Identify high performing regional vascular centers to discuss variations in care and clinical practice patterns to improve outcomes and prompt quality improvement recommendations for vascular care patients. Sharing of best practices/pathways of care.</td>
<td>Yes</td>
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<tr>
<td>Time</td>
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<tr>
<td>1:35 pm</td>
<td>Break-Lunch</td>
<td>No</td>
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<tr>
<td>2:00 pm</td>
<td>National VQI Update – Betsy Wymer, DNP, RN, RN-BC, Quality Director, PSO</td>
<td>Yes</td>
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<td></td>
<td>Learning Objectives:</td>
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<td>• Use the VQI regional reports to establish quality improvement goals for the vascular patients (outcomes) and for their center (process).</td>
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<tr>
<td>3:00 pm</td>
<td>AQC Update – Megan Tracci, MD</td>
<td>No</td>
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<td></td>
<td>VQC Update – David Spinosa, MD</td>
<td>No</td>
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<tr>
<td>3:15 pm</td>
<td>RAC Update – W Darrin Clouse, MD</td>
<td>No</td>
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<tr>
<td>3:30 pm</td>
<td>Governing Council Update – Albeir Mousa, MD</td>
<td>No</td>
</tr>
<tr>
<td>4:00 pm</td>
<td>Open Discussion/Next Meeting/Meeting Evaluation</td>
<td>No</td>
</tr>
</tbody>
</table>
2022 VVSG Spring Meeting Agenda

10:30–11:00 AM Check in (Lunch will be Provided)

11:00 AM Joint breakout
- Executive Committee (lead physicians from each center)
- Data Manager Meeting (data managers each site)

12:00 PM Welcome and Introduction
Samantha Minc, MD and Albeir Mousa, MD Co-Medical Directors

12:05 PM VQI National Updates Betsy Wymer, VQI/PSO

12:45PM Council Updates
- AQC Update Megan Tracci, MD
- VQC Update David Spinosa, MD
- RAC Update Darrin Clouse, MD
- GC Update Samantha Minc, MD and Albeir Mousa, MD

1:15 PM VVSG Regional Data Review Samantha Minc, MD and Albeir Mousa, MD

2:00-2:15 PM Break
2:15 PM  VVSG QI Presentations:
  • Vascular Rehab Program - Dr. Sam Steerman (Sentara)
  • Long term follow-up - Chris Sytsma (Winchester Medical Center)
  • EVAR Multi-Regional Project Update – Stacy Giardina (WVU Medicine)

3:00 PM  Regional QI Discussions

4:00 PM  Closing Remarks, Meeting evaluation and Adjournment
  Samantha Minc, MD and Albeir Mousa, MD Co-Medical Directors
Disclosure

No disclosures.
Welcome and Introductions

**Berkeley Medical Center**
Berkeley Medical Center
Bon Secours Maryview Medical Center
Bon Secours Memorial Regional Medical Center
Bon Secours St. Francis Medical Center
Bon Secours St. Mary's Hospital
Camden Clark Medical Center

**Carilion New River Valley Medical Center**
Carilion Roanoke Memorial Hospital
Charleston Area Medical Center
Chesapeake Regional Medical Center
Chippenham Hospital

**Henrico Doctors' Hospital**

**Inova Alexandria Hospital**
Inova Fair Oaks Hospital
Inova Fairfax Hospital
Inova Loudoun Hospital
Inova Mount Vernon Hospital
Johnston-Willis Hospital
Lynchburg General Hospital
Mary Washington Hospital
Monongalia County General Hospital Company d/b/a Mon Health Medical Center

**Raleigh General Hospital**
Riverside Regional Medical Center
Sentara Careplex Hospital
Sentara Leigh Hospital
Sentara Martha Jefferson
Sentara Norfolk General Hospital
Sentara Northern Virginia Medical Center
Sentara Obici Hospital
Sentara Princess Anne Hospital
Sentara RMH Medical Center
Sentara Virginia Beach General Hospital
Sentara Williamsburg Regional Medical Center
St. Mary's Medical Center (WV)
Stafford Hospital
United Hospital Center
University of Virginia Health System
VCU Health System Authority
West Virginia University Hospital
Winchester Medical Center
National VQI Update

Betsy Wymer, DNP, RN, RN-BC, Quality Director, PSO
What is a PSO

PSO = Patient Safety Organization

• Created under authorization of the Patient Safety and Quality Improvement Act of 2005 (PSQIA)

• Goal – Improve quality & safety of health care delivery

• PSQIA encourages voluntary reporting & sharing of patient safety information without fear of legal discovery
Functions of a PSO

- Protects comparative data from discovery
- Eliminates need for informed patient consent & IRB approval for core registry participation
- Allows patient identifiers to be included for internal purposes
- Only de-identified data can be released
  - Benchmarking, risk adjustment and merging with other identified data sets done within the PSO
  - QI research requires approval of PSO RAC committee; analytic data sets are de-identified
PSO Activities

• Patient Safety Work Product (PSWP) - Reports that identify center-specific or physician-specific outcomes or processes
  – Semi-annual reports
  – Quarterly Dashboards
  – COPI/CAPI reports

• All reports treated as confidential

• Utilization of PSWP
  – Encourages a culture of safety
  – Provides a mechanism for feedback
  – Non-identifiable
  – Never used for punitive or competitive purposes
Patient Safety Evaluation System (PSES)

• Designation of user account privileges

• PSWP analysis is recommended to be outside of normal QA/Peer Review meetings

• Develop process on how to integrate PSWP results into the overall QI operations

• PSES requires training for those with access to PSWP to ensure that the privilege & confidentiality of PSWP is maintained

• The law provides significant penalties for failure to maintain the confidentiality of PSWP.
Number of Participating Centers

Location of VQI Participating Centers

928 VQI Centers
927 centers in North America
1 center in Singapore
Total Procedures Captured
(as of 4/1/2022)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peripheral Vascular Intervention</td>
<td>317,955</td>
</tr>
<tr>
<td>Carotid Endarterectomy</td>
<td>172,414</td>
</tr>
<tr>
<td>Infra-Inguinal Bypass</td>
<td>73,346</td>
</tr>
<tr>
<td>Endovascular AAA Repair</td>
<td>71,506</td>
</tr>
<tr>
<td>Hemodialysis Access</td>
<td>69,705</td>
</tr>
<tr>
<td>Carotid Artery Stent</td>
<td>72,267</td>
</tr>
<tr>
<td>Varicose Vein</td>
<td>53,246</td>
</tr>
<tr>
<td>Supra-Inguinal Bypass</td>
<td>23,646</td>
</tr>
<tr>
<td>Thoracic and Complex EVAR</td>
<td>24,435</td>
</tr>
<tr>
<td>Lower Extremity Amputations</td>
<td>24,459</td>
</tr>
<tr>
<td>IVC Filter</td>
<td>17,117</td>
</tr>
<tr>
<td>Open AAA Repair</td>
<td>16,188</td>
</tr>
<tr>
<td>Vascular Medicine Consult</td>
<td>527</td>
</tr>
<tr>
<td>Venous Stent</td>
<td>76</td>
</tr>
</tbody>
</table>

936,887

VQI Total Procedure Volume

(Through March 31, 2022)

Total Procedure Volume tab reflects net procedures added to the registry for the month
2022 VQI Annual Meeting at VAM

Dates:
Tuesday afternoon, June 14, 2022, 12PM – 6:30PM ET
Wednesday, June 15, 2022, 8AM – 5PM ET

Location:
Hynes Convention Center, Boston, MA

*Poster Presentation and Networking Reception
Tuesday, June 14, 2022
5:00PM to 6:30PM

Hope to see you there!!!
Long Term Follow Up Reports

Currently available:

- EVAR, CAS, CEA
- Soon to be released PVI, TEVAR, IVC, HDA......
Device Assist and Symmetric Integration Coming Soon

• Device Assist – New device search functionality within Pathways to assist in finding the devices used for treatment
  – Search by manufacturer, device name
  – Available in the PVI Registry Comprehensive data collection tool

• Symmetric – Healthcare supply software company
  – Reducing/eliminating data discrepancies
  – Providing real-time up to date access to FDA approved devices
Pilot Extension

My PAD
My Peripheral Arterial Disease Pilot

• Quality of Life survey for the PVI Registry
• Extending pilot to new interested centers
• Start up education and promotional documents will be provided
• For questions or interest please contact cmorgan@svspso.org
Grants & Industry Meeting Support

• Not guaranteed funds

• On average industry supporters provided $1,000 - $2,000 for regional meetings

• New reporting standards have changed food and beverage support for regional meetings

• Be prepared to cover these type costs with other funding
Regional Lead Data Managers

- Volunteer position
- Help to organize/coordinate Regional Meetings
- Disseminate information gathered from RLDM quarterly meetings with the SVS PSO staff to your region’s Data Managers
- Strategies for recruitment & filling vacant positions
Website Redesign

• A new VQI.org experience is coming!
• New look and feel, fresh content, and improved navigation.
• Our goal is to showcase the new site at VQI@VAM
The SVS Vascular Quality Initiative (VQI) is now on LinkedIn. Follow our page for the latest news and events!
VQI Mobile App

• The SVS PSO is pursuing the creation of a brand new VQI Mobile App that could be used on your personal device.
• We hope this will allow us to get information to you more effectively and efficiently.
• The VQI Mobile App will start out as a communication tool, and hopefully grow from there.
Nov 2, 2021 – Day #1
Benefit-risk profile of the Endologix AFX endovascular graft system with regards to the risk of Type III endoleaks

Nov 3, 2021 – Day #2
Real World Surveillance of AAA Endovascular Stent Grafts
Conclusions:
Endologix AFX has history of increased Type III endoleaks –
• Panel expressed concerns about role of AFX 2
• Mitigation efforts taken
• Further steps underway with FDA, industry and VQI

Real World Evidence plays an important role in analyzing EVAR
• Follow up 5-10 years
• Needs support
• Clinical Registry – VQI
• Vascular Research Collaborative (VRC)
• VISION - CMS claims linkage
VQI analysis of Paclitaxel controversy

**DELTA**
Data Extraction and Longitudinal Trend Analysis 2020-2024

Registry surveillance

Fred Resnic, MD

Lahey Hospital & Medical Center

**VISION**
Vascular Implant Surveillance and Interventional Outcomes Network

VQI-CMS claims matched analysis

MDEpiNet Medical Device Epidemiology Network

Phil Goodney, MD

Art Sedrakyan, MD

Dartmouth-Hitchcock Health

Weill Cornell Medicine

SVS | Society for Vascular Surgery

American Venous Forum

fivos

Society for Vascular Medicine

VASA

SVU
Conclusions:

• Prospective, active surveillance of the SVS VQI PVI registry using DELTA did not demonstrate a signal for increased mortality

• Claims analysis through VISION did not demonstrate a signal for increased mortality or major amputation

• VQI data did not show increased mortality with Paclitaxel devices
Quality Improvement Update
Spring 2022

Dr. Betsy Wymer, DNP, RN, RN-BC
Director Quality
Trainee Program Update

• Mentor based 12–18-month program
• Regional meetings, center data review
• Quality and research opportunities
• VQI@VAM
• Chance to be selected for scholarship
• Quarterly check-ins with SVS PSO staff
• Satisfaction surveys, feedback
• GLemmon@svspso.org or bwymer@svspso.org
<table>
<thead>
<tr>
<th>FIT Mentors</th>
<th>FIT Trainees</th>
<th>Centers</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sarah Deery</td>
<td>Aarathi Minisandram</td>
<td>Maine Medical Center</td>
</tr>
<tr>
<td>Graham Roche-Nagle</td>
<td>Ben Li</td>
<td>Toronto General Hospital</td>
</tr>
<tr>
<td>Sarah Zettervall</td>
<td>Blake Murphy</td>
<td>University of Washington Medical Center</td>
</tr>
<tr>
<td>Phil Goodney</td>
<td>Brianna Krafck</td>
<td>Dartmouth Hitchcock Medical Center</td>
</tr>
<tr>
<td>Benjamin Brooke</td>
<td>Caronae Howell</td>
<td>The University of Arizona/University of Utah Hospital and Clinics</td>
</tr>
<tr>
<td>Shihuan K Wang</td>
<td>Channa Blakely</td>
<td>UTMB Health/Memorial Hermann Texas Medical Center</td>
</tr>
<tr>
<td>Danny Bertges</td>
<td>Christine Kariya</td>
<td>University of Vermont Medical Center</td>
</tr>
<tr>
<td>Adam Beck</td>
<td>Claire Motyl</td>
<td>University of Alabama Medical Center</td>
</tr>
<tr>
<td>Michael Murphy</td>
<td>Hanaa Dakour Aridi</td>
<td>IU Health – Methodist</td>
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<tr>
<td>Edward Gifford</td>
<td>Laura Healy</td>
<td>Hartford Hospital University of Connecticut</td>
</tr>
<tr>
<td>Eleftherios Xenos</td>
<td>Lauren Grimsley</td>
<td>UK Healthcare</td>
</tr>
<tr>
<td>Kyla Bennett</td>
<td>Leah Gober</td>
<td>University of Wisconsin Hospitals and Clinics Authority</td>
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<tr>
<td>Karan Garg</td>
<td>Rae Rokosh</td>
<td>NYU Langone Health</td>
</tr>
<tr>
<td>Beau Hawkins</td>
<td>Razan Elsayed</td>
<td>OU Medical Center</td>
</tr>
<tr>
<td>Mitchell Cox</td>
<td>Roberto Loanzon</td>
<td>Duke University Health System</td>
</tr>
<tr>
<td>Nikoloas Zacharias</td>
<td>Srihari Kumar Lella</td>
<td>Massachusetts General Hospital</td>
</tr>
</tbody>
</table>
Trainee Program Update

• Sign up to be a mentor
• Next Trainee application – January 2023
• Check [www.vqi.org](http://www.vqi.org) frequently

• Share your tweets
  #nextgenVQI
2022 PARTICIPATION AWARDS PROGRAM

The four domains for the 2022 Participation Awards criteria:

Domain 1 – LTFU – 40% weighted
Domain 2 – Regional Meeting Attendance – 30% weighted
Domain 3 – QI Project – 20% weighted
Domain 4 – Registry Subscriptions – 10% weighted

The final score is calculated as follows:

Total points = 4 x LTFU score + 3 x Attendance score + 2 x QI score + 1 x registry score
Participation Awards


**Domain – QI Project – 20% weighted**

Scoring on 0 – 6-point scale to keep consistent with other measures. This gives centers options for getting **6 maximum QI points**.

- Initiation of a QI Project, evidenced by submitting a Project Charter to QI@SVPSO.ORG or bwymer@svpspo.org (2 points). **One charter per year.**

- Presenting a QI Project (presentation or poster) at a Regional VQI, *Regional Society Meeting, or *Hospital Board meeting (2 points) **When presenting at succinct regional meetings, project slides must reflect a change or update in status.**

- Presenting a QI Project (presentation or poster) at the National VQI or *Vascular Annual Meeting (2 points)

- *Publish a VQI quality improvement article in a Peer Reviewed Journal (2 points)

- Centers with significant improvement or excellent performance rates on National QI Initiatives will receive one additional point (per initiative), for a maximum of 6 QI points

* Please send attestation (proof) to bwymer@svpspo.org on or before December 31, 2022.
Participation Award Results

Carilion Roanoke Memorial Hosp
Sentara Careplex Hospital
Sentara Norfolk General Hospital
Sentara Nor Virginia Medical Ctr
Sentara Princess Anne Hospital
United Hospital Center
West VA University Hospital
Winchester Medical Center

Charleston Area Medical Ctr
Inova Alexandria Hospital
Inova Fair Oaks Hospital
Inova Fairfax Hospital
Inova Loudoun Hospital
Inova Mount Vernon Hospital
Sentara Leigh Hospital
Sentara Martha Jefferson
Sentara Obici Hospital
Sentara RMH Medical Center
Sentara VA Beach General Hospital
Sentara Williamsburg Regional Medical Center
University of VA Health System

Camden Clark Medical Ctr
VCU Health System Authority
Charter Historical Review

Quality Improvement Charters

- LTFU: 5, 10, 14, 16
- DC Meds: 10, 17, 12, 8
- Documentation: 4, 4, 24, 24
- Clinical: 7, 7, 3, 3
- Other: 0, 0, 0, 10

Quality Improvement Charters

- 2018: 55
- 2019: 58
- 2020: 74
- 2021: 74
Quality Improvement Updates

• How to Begin a Charter
  – Attend Charter Focus Calls
  – Listen to Prior Webinars
    • www.vqi.org
  – Review Sample Charters
    • https://www.vqi.org/quality-improvement/qi-projects/
  – Network with colleagues
  – 1:1 Meeting
    • bwymer@svspso.org
Quality Improvement Updates

- Charter Focus Calls
  - New format
- Quarterly Webinars
- Monthly VQI Newsletter
- Sample Charters
- Overview of QI Tools
- [https://www.vqi.org/quality-improvement/](https://www.vqi.org/quality-improvement/)
Des Moines University is the continuing education provider for this activity. The attendance roster will be cross-referenced with those applying for CME/CE. Sign in correctly.

Each participant MUST COMPLETE BOTH the attendance attestation and the meeting evaluation from the URL site – one form. You will have 7 days from the date of the meeting to complete the forms and SUBMIT.

Approximately 14 days from the meeting, Des Moines University will email you instructions on how to access your certificate. PSO leadership is providing continuing education credit to you at no charge!

If you do not complete and submit the online forms within 7 days, continuing education credit cannot be awarded.
Meeting Attendance Credit

REMEMBER TO PSO:

• **P**UT your FULL NAME in RingCentral to get credit for attendance and CME/CE credit (no exceptions will be made)

• **S**END an email to ljohnson@svspso.org with names of group members that are sharing 1 device

• **O**FFICIALLY apply for CME/CE credit by clicking this link:
  https://dmu.co1.qualtrics.com/jfe/form/SV_8Gkg2CFagVTcbFc

You only have **7 days** to complete forms for CME/CE Credit.
NO EMAIL WILL BE SENT AS A REMINDER OR WITH THE CME/CE LINK
Arterial Quality Council:
Megan Tracci, MD
Spring 2022 AQC Update

• Discussion for development of new National Quality Initiatives
  – Discharge Mediation measure placed in maintenance mode due to high compliance
  – EVAR Sac Diameter – need for continued efforts to improve compliance

• National LTFU Survey creation & results

• VQI Risk Calculators

• Harmonization of Urgency variables as much as possible across “like” registries
Venous Quality Council:
David Spinosa, MD
SVS created a separate Venous RAC

The Vascular Quality Initiative - National Venous RAC Schedule (vqi.org)

2021: 3 proposals

• Incidence of venous thromboembolic events (VTE) after endovenous ablation in patients with venous stasis ulcers (C6 disease): Jaime Benarroch-Gampel

• Impact of Treatment Length and Treatment Region on Clinical Outcomes after Varicose Vein Procedures: Halbert Bai

• Safety and efficacy of endovenous ablation in patients with a history of DVT: Mikel Sadek

• AVF meeting
  February 23rd - 26th, 2022

Ideas for Venous Registry Specific Metrics:

– Anticoagulation after venous stents?
– C2 disease for varicose veins?
– IVC temporary filter retrieval?
– IDEAS???
Arterial Research Advisory Council:

W Darrin Clouse, MD
1. Management and treatment outcomes of patients undergoing endovenous ablation are significantly different between Intersocietal Accreditation Commission-accredited and nonaccredited vein centers
Andrea T Obi, Sophia Afridi, Fedor Lurie  DOI: 10.1016/j.jvsv.2020.07.007

2. Transcarotid artery revascularization versus carotid endarterectomy and transfemoral stenting in octogenarians
Ambar Mehta, Priya B Patel, Danielle Bajakian, Richard Schutzer, Nicholas Morrissey, Mahmoud Malas, Marc Schermerhorn, Virendra I Patel DOI: 10.1016/j.jvs.2021.05.028

3. Percutaneous brachial access associated with increased incidence of complications compared with open exposure for peripheral vascular interventions in a contemporary series  Charles DeCarlo, Christopher A Latz, Laura T Boitano, Anna A Pendleton, Jahan Mohebali, Mark F Conrad, Matthew J Eagleton, Samuel I Schwartz  DOI: 10.1016/j.jvs.2020.08.143


7. Lower Extremity Revascularization for Chronic Limb-Threatening Ischemia among Patients at the Extremes of Age  Tanner I Kim, Edouard Aboian, Uwe Fischer, Yawei Zhang, Raul J Guzman, Cassius Iyad Ochoa Chaar  DOI: 10.1016/j.avsg.2020.08.135

8. Stress testing before abdominal aortic aneurysm repair does not lead to a reduction in perioperative cardiac events  Jesse A Columbo, Falen Demsas, Zachary J Wanken, Bjoern D Suckow, Jocelyn M Beach, Stanislav Henkin, Philip P Goodney, David H Stone  DOI: 10.1016/j.jvs.2021.02.032


Dr. Leila Mureebe,
SVS PSO Associate Medical Director

— Creating videos on how to submit a RAC Proposal for “success”
— Creating useful tools and tips to train new investigators
Spring 2022 RAC Submission Reminders

• Ensure your RAC submission is complete
  – Data Tables
  – Full Research proposal
  – CV
  – Regional RAC Review

• Your center must participate in the registry related to your research proposal
1. Review list of projects:
https://www.vqi.org/data-analysis/rac-approved-project-search/

2. Submit proposal online:
http://abstracts123.com/svs1/meetinglogin

3. Deadlines for submissions:
The Vascular Quality Initiative | National Arterial and Venous RAC Schedules (vqi.org)
Governing Council:
Albeir Mousa, MD
Spring 2022 GC Update

• Dr. Lemmon provided an updated on the VQI Fellows in Training program

• The Governing Council provided input on the PSO 2022/2023 software development activities

• Dr. Jorgensen provided an update on the FDA panel discussions regarding type 3 endoleaks

• Kristopher Huffman presented the PSO’s strategy around the development and maintenance of Risk Calculators
VQI Regional Quality Report

Spring 2022

This report is patient safety work product generated within the SVS PSO, LLC, and is considered privileged and confidential.

About the Report

The VQI Regional Quality Report is produced semiannually to provide centers and regions targeted, comparative results and benchmarks for a variety of procedures, process measures, and postoperative outcomes. The report is organized into separate reports that can be quickly accessed by clicking on the report names in the table of contents on the left.

For drill-down and data feedback on your center’s cases, click on “VQI Case Appendix” in the table of contents on the left.
Important Notes

- All results are based on data entered into the VQI as of January 31, 2022. Any subsequent changes or updates to data after that date will not be reflected in this report.

- Procedure timeframes and inclusion/exclusion criteria are given at the top of each report. Cases are also excluded if outcomes are missing or not enough data was entered to determine whether the case met inclusion/exclusion criteria.

- Regions must have at least 3 centers with included cases for regional results to be displayed in tables and line charts.

- Regions must have at least 3 centers with at least 10 included cases per center for regional results to be displayed in bar charts. It is therefore possible for a region’s results to be displayed in tables and line charts, but not in bar charts.

- For risk-adjusted reports, regions must have at least 3 centers with at least 10 complete cases per center for regional results to be displayed in bar charts. It is therefore possible for a region’s results to be displayed in tables and line charts, but not in bar charts.

- In all graphics, "**" indicates a p-value <.05.
Important Updates

The following updates have been implemented to enhance and improve the Spring 2022 VQI Regional Quality Report:

• **Number of Centers Displayed**
  – All center-variation bar charts now show the number of centers displayed in the chart, as well as the total number of centers in the region contributing data to the associated report.

• **Updated Region Volume Appendix**
  – The Region Volume Appendix now contains entries for the “Procedure Volume” and “Procedure Volume, All Years” reports.
Report-Specific Updates

The following report-specific updates have been implemented to enhance and improve the specified report(s):

- **TFEM CAS**
  - Changed inclusion/exclusion criteria – Procedures with an approach of either Brachial or Radial are now included in both ASYM and SYMP reports.

- **EVAR: SVS Sac Size Guideline**
  - Nomenclature change to “EVAR: SVS AAA Diameter Guideline”. No changes to the report itself.
Dashboard

The dashboard provides a high-level summarization of your center’s results for each of 25 reports, and gives both regional and VQI-wide benchmarks for comparison. The “Your Center” column gives the percentage of your center’s cases with the noted outcome. Numbers in parentheses give the number of cases with the outcome and the total number of cases meeting the inclusion criteria for that report. The “Your Region” and “VQI Overall” columns give the aggregate percentage of cases with the noted outcome, as well as the 10th, 25th, 50th (median), 75th, and 90th percentiles for centers in your region and VQI, respectively ([10th|25th|50th|75th|90th]). Your center’s results are highlighted blue if your center is in the “top” 25th percentile for VQI Overall, and coral if your center is in the “bottom” 25th percentile for VQI Overall.

For details on a particular report, click on the report name in the table of contents on the left.

Legend: Blue = “Top” 25th percentile  Coral = “Bottom” 25th percentile

Note that procedure volume results are not highlighted.
# VVSG Regional Dashboard

<table>
<thead>
<tr>
<th>Procedure Group</th>
<th>Outcome</th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>All</td>
<td>Procedure Volume</td>
<td>[19 73 244 360 730]</td>
<td>[7 19 76 203 413]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Procedure Volume, All Years</td>
<td>[60 231 1296 2780 5602]</td>
<td>[12 47 266 1294 3153]</td>
<td></td>
</tr>
<tr>
<td>Multiple</td>
<td>Long-Term Follow-up</td>
<td>85.3% [59 78 86 93 97]</td>
<td>71.1% [0 37 73 89 96]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Discharge Medications</td>
<td>83.7% [68 76 82 89 96]</td>
<td>86.1% [73 82 90 97 100]</td>
<td></td>
</tr>
<tr>
<td>TFEM CAS ASYMP</td>
<td>Stroke/Death</td>
<td>1.9% [0 0 0 0 3]</td>
<td>1.7% [0 0 0 0 3]</td>
<td></td>
</tr>
<tr>
<td>TFEM CAS SYMP</td>
<td>Stroke/Death</td>
<td>4.3% [0 0 0 1 13]</td>
<td>4.7% [0 0 0 0 13]</td>
<td></td>
</tr>
<tr>
<td>TCAR ASYMP</td>
<td>Stroke/Death</td>
<td>1.7% [0 0 0 1 13]</td>
<td>1.3% [0 0 0 0 4]</td>
<td></td>
</tr>
<tr>
<td>TCAR SYMP</td>
<td>Stroke/Death</td>
<td>1.8% [0 0 0 0 4]</td>
<td>2.6% [0 0 0 0 10]</td>
<td></td>
</tr>
<tr>
<td>CEA ASYMP</td>
<td>Stroke/Death</td>
<td>0.7% [0 0 0 0 2]</td>
<td>0.9% [0 0 0 0 3]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Postop LOS&gt;1 Day</td>
<td>16.2% [0 7 18 32 50]</td>
<td>21.7% [0 11 20 32 50]</td>
<td></td>
</tr>
<tr>
<td>CEA SYMP</td>
<td>Stroke/Death</td>
<td>2.4% [0 0 0 0 7]</td>
<td>2.2% [0 0 0 0 8]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Postop LOS&gt;1 Day</td>
<td>36.3% [0 17 33 65 73]</td>
<td>40.8% [0 25 40 56 75]</td>
<td></td>
</tr>
<tr>
<td>EVAR</td>
<td>Postop LOS&gt;2 Days</td>
<td>17% [0 0 14 28 36]</td>
<td>16.7% [0 7 15 23 34]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Sac Diameter Reporting</td>
<td>61.7% [51 58 73 78 88]</td>
<td>58% [0 38 60 77 87]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SVS AAA Diameter Guideline</td>
<td>71.2% [32 63 77 86 100]</td>
<td>75.3% [50 64 76 86 100]</td>
<td></td>
</tr>
<tr>
<td>TEVAR</td>
<td>Sac Diameter Reporting</td>
<td>64.8% [18 59 73 86 100]</td>
<td>59.3% [0 33 58 78 94]</td>
<td></td>
</tr>
<tr>
<td>OAAA</td>
<td>In-Hospital Mortality</td>
<td>7.8% [0 0 2 9 25]</td>
<td>4.2% [0 0 0 7 15]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SVS Cell-Saver Guideline</td>
<td>95.7% [92 94 100 100 100]</td>
<td>92.4% [73 89 98 100 100]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>SVS Iliac Inflow Guideline</td>
<td>97.4% [94 100 100 100 100]</td>
<td>97.6% [92 98 100 100 100]</td>
<td></td>
</tr>
<tr>
<td>PVI CLAUD</td>
<td>ABI/Toe Pressure</td>
<td>85.5% [76 82 89 99 100]</td>
<td>74.8% [39 63 82 93 100]</td>
<td></td>
</tr>
<tr>
<td>INFRA CLTI</td>
<td>Major Complications</td>
<td>4.6% [0 0 3 6 10]</td>
<td>4.9% [0 0 3 7 12]</td>
<td></td>
</tr>
<tr>
<td>SUPRA CLTI</td>
<td>Major Complications</td>
<td>7.9% [0 0 0 6 19]</td>
<td>8.1% [0 0 0 12 25]</td>
<td></td>
</tr>
<tr>
<td>LEAMP</td>
<td>Postop Complications</td>
<td>10.4% [0 5 8 16 20]</td>
<td>11.7% [0 3 8 15 21]</td>
<td></td>
</tr>
<tr>
<td>HDA</td>
<td>Primary AVF vs. Graft</td>
<td>85.1% [57 73 89 91 93]</td>
<td>82.4% [64 73 84 91 100]</td>
<td></td>
</tr>
<tr>
<td>IVCF</td>
<td>Filter Retrieval Reporting</td>
<td>67% [27 50 62 86 88]</td>
<td>54.5% [9 31 52 72 87]</td>
<td></td>
</tr>
</tbody>
</table>

**Legend:** Blue = “Top” 25th percentile  Coral = “Bottom” 25th percentile

Note that procedure volume results are not highlighted.
### About the Appendix

The Region Volume Appendix provides your region’s case volumes for each report. In addition, the number of centers with cases contributing to each report is given. Note that columns referencing complete cases are appropriately left blank for non-risk-adjusted reports.

<table>
<thead>
<tr>
<th>Report</th>
<th>Included Cases</th>
<th>Centers with Included Cases</th>
<th>Centers with at least 10 Included Cases</th>
<th>Complete Cases</th>
<th>Centers with Complete Cases</th>
<th>Centers with at least 10 Complete Cases</th>
</tr>
</thead>
<tbody>
<tr>
<td>Procedure Volume</td>
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<td>32</td>
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<td>Procedure Volume, All Years</td>
<td>79797</td>
<td>37</td>
<td>36</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Long-Term Follow-up</td>
<td>9172</td>
<td>29</td>
<td>29</td>
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<td></td>
<td></td>
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<tr>
<td>Discharge Medications</td>
<td>7431</td>
<td>34</td>
<td>32</td>
<td></td>
<td></td>
<td></td>
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<tr>
<td>TFEM CAS ASYMP: Stroke/Death</td>
<td>159</td>
<td>15</td>
<td>7</td>
<td>146</td>
<td>14</td>
<td>7</td>
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<tr>
<td>TFEM CAS SYMP: Stroke/Death</td>
<td>115</td>
<td>16</td>
<td>4</td>
<td>106</td>
<td>16</td>
<td>4</td>
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<tr>
<td>TCAR ASYMP: Stroke/Death</td>
<td>302</td>
<td>19</td>
<td>9</td>
<td>291</td>
<td>19</td>
<td>9</td>
</tr>
<tr>
<td>TCAR SYMP: Stroke/Death</td>
<td>112</td>
<td>16</td>
<td>6</td>
<td>108</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>CEA ASYMP: Stroke/Death</td>
<td>720</td>
<td>26</td>
<td>19</td>
<td>702</td>
<td>26</td>
<td>18</td>
</tr>
<tr>
<td>CEA ASYMP: Postop LOS&gt;1 Day</td>
<td>720</td>
<td>26</td>
<td>19</td>
<td>702</td>
<td>26</td>
<td>18</td>
</tr>
<tr>
<td>CEA SYMP: Stroke/Death</td>
<td>337</td>
<td>27</td>
<td>11</td>
<td>324</td>
<td>27</td>
<td>11</td>
</tr>
<tr>
<td>CEA SYMP: Postop LOS&gt;1 Day</td>
<td>337</td>
<td>27</td>
<td>11</td>
<td>324</td>
<td>27</td>
<td>11</td>
</tr>
<tr>
<td>EVAR: Postop LOS&gt;2 Days</td>
<td>430</td>
<td>24</td>
<td>14</td>
<td>387</td>
<td>23</td>
<td>13</td>
</tr>
<tr>
<td>EVAR: Sac Diameter Reporting</td>
<td>444</td>
<td>18</td>
<td>12</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>EVAR: SVS AAA Diameter Guideline</td>
<td>347</td>
<td>22</td>
<td>13</td>
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<td></td>
<td></td>
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<tr>
<td>TEVAR: Sac Diameter Reporting</td>
<td>88</td>
<td>9</td>
<td>4</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>OAAA: In-Hospital Mortality</td>
<td>179</td>
<td>16</td>
<td>7</td>
<td>162</td>
<td>16</td>
<td>6</td>
</tr>
<tr>
<td>OAAAA: SVS Cell-Saver Guideline</td>
<td>185</td>
<td>15</td>
<td>7</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>OAAAM: SVS Iliac Inflow Guideline</td>
<td>196</td>
<td>16</td>
<td>6</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>PVI CLAUD: ABI/Toe Pressure</td>
<td>1028</td>
<td>22</td>
<td>18</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>INFRA CLTI: Major Complications</td>
<td>410</td>
<td>19</td>
<td>13</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SUPRA CLTI: Major Complications</td>
<td>101</td>
<td>13</td>
<td>4</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>LEAMP: Postop Complications</td>
<td>876</td>
<td>19</td>
<td>19</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>HDA: Primary AVF vs. Graft</td>
<td>991</td>
<td>17</td>
<td>16</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>IVCF: Filter Retrieval Reporting</td>
<td>270</td>
<td>17</td>
<td>9</td>
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<td></td>
</tr>
</tbody>
</table>
## Procedure Volume

Procedures performed between January 1 and December 31, 2021

Number of cases entered into the VQI, by registry and overall

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Your Center (N)</th>
<th>Your Region (N)</th>
<th>VQI Overall (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS (TFEM CAS &amp; TCAR)</td>
<td>885</td>
<td>15409</td>
<td></td>
</tr>
<tr>
<td>CEA</td>
<td>1264</td>
<td>17679</td>
<td></td>
</tr>
<tr>
<td>EVAR</td>
<td>476</td>
<td>7653</td>
<td></td>
</tr>
<tr>
<td>HDA</td>
<td>1243</td>
<td>5978</td>
<td></td>
</tr>
<tr>
<td>INFRA</td>
<td>541</td>
<td>6789</td>
<td></td>
</tr>
<tr>
<td>IVCF</td>
<td>530</td>
<td>1322</td>
<td></td>
</tr>
<tr>
<td>LEAMP</td>
<td>878</td>
<td>3085</td>
<td></td>
</tr>
<tr>
<td>OAAA</td>
<td>56</td>
<td>1283</td>
<td></td>
</tr>
<tr>
<td>PVI</td>
<td>3327</td>
<td>43995</td>
<td></td>
</tr>
<tr>
<td>SUPRA</td>
<td>159</td>
<td>1870</td>
<td></td>
</tr>
<tr>
<td>TEVAR</td>
<td>220</td>
<td>3163</td>
<td></td>
</tr>
<tr>
<td>Varicose Veins</td>
<td>NA (&lt;3 centers)</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Overall (Jan-Dec 2021)</td>
<td>9694</td>
<td>114217</td>
<td></td>
</tr>
<tr>
<td>Overall (Jan-Dec 2020)</td>
<td>9392</td>
<td>111113</td>
<td></td>
</tr>
</tbody>
</table>
## Procedure Volume, All Years

Includes all procedures with procedure date through December 31, 2021

Number of cases entered into the VQI, by registry and overall

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Your Center (N)</th>
<th>Your Region (N)</th>
<th>VQI Overall (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS (TFEM CAS &amp; TCAR)</td>
<td>4300</td>
<td>66792</td>
<td></td>
</tr>
<tr>
<td>CEA</td>
<td>11616</td>
<td>167675</td>
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</tr>
<tr>
<td>EVAR</td>
<td>4520</td>
<td>67929</td>
<td></td>
</tr>
<tr>
<td>HDA</td>
<td>13015</td>
<td>66228</td>
<td></td>
</tr>
<tr>
<td>INFRA</td>
<td>5041</td>
<td>70209</td>
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</tr>
<tr>
<td>IVCF</td>
<td>4700</td>
<td>16522</td>
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</tr>
<tr>
<td>LEAMP</td>
<td>5457</td>
<td>23123</td>
<td></td>
</tr>
<tr>
<td>OAAA</td>
<td>587</td>
<td>15617</td>
<td></td>
</tr>
<tr>
<td>PVI</td>
<td>25857</td>
<td>299452</td>
<td></td>
</tr>
<tr>
<td>SUPRA</td>
<td>1467</td>
<td>22545</td>
<td></td>
</tr>
<tr>
<td>TEVAR</td>
<td>1438</td>
<td>22625</td>
<td></td>
</tr>
<tr>
<td>Varicose Veins</td>
<td>1799</td>
<td>50680</td>
<td></td>
</tr>
<tr>
<td>Overall</td>
<td>79797</td>
<td>889397</td>
<td></td>
</tr>
</tbody>
</table>
Procedure Volume by Center in Your Region (Through Dec 2021)

Centers (centers with <10 cases not shown)

36 of 37 centers displayed

Procedure Volume Across VQI (Through Dec 2021)

Regions (regions with <3 centers with at least 10 cases not shown)

“Others” indicates centers that do not belong to a regional group.
Physician Specialties

Physician Specialties Across VQI (as of January 31, 2022, N=5849 Physicians)
Physician Specialties Across Your Region (as of January 31, 2022, N=510 Physicians)
Long-Term Follow-up

Procedures performed between January 1 and December 31, 2019
Includes CAS (TFEM CAS and TCAR), CEA, EVAR, HDA, INFRA, IVCF, LEAMP, OAAA, PVI, SUPRA, and TEVAR procedures only. Excludes procedures not eligible for long-term follow-up.

The table below gives the number of procedures meeting the inclusion criteria, and the percentage of those procedures with follow-up recorded between 9 and 21 months post-procedure.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS</td>
<td>581 (79%)</td>
<td>11358 (66%)</td>
<td></td>
</tr>
<tr>
<td>CEA</td>
<td>1255 (84%)</td>
<td>19463 (73%)</td>
<td></td>
</tr>
<tr>
<td>EVAR</td>
<td>501 (75%)</td>
<td>7711 (72%)</td>
<td></td>
</tr>
<tr>
<td>HDA</td>
<td>1508 (85%)</td>
<td>8378 (69%)</td>
<td></td>
</tr>
<tr>
<td>INFRA</td>
<td>586 (87%)</td>
<td>7383 (74%)</td>
<td></td>
</tr>
<tr>
<td>IVCF</td>
<td>525 (86%)</td>
<td>1887 (76%)</td>
<td></td>
</tr>
<tr>
<td>LEAMP</td>
<td>763 (89%)</td>
<td>3199 (72%)</td>
<td></td>
</tr>
<tr>
<td>OAAA</td>
<td>48 (75%)</td>
<td>1250 (74%)</td>
<td></td>
</tr>
<tr>
<td>PVI</td>
<td>3097 (88%)</td>
<td>40101 (71%)</td>
<td></td>
</tr>
<tr>
<td>SUPRA</td>
<td>139 (83%)</td>
<td>2269 (73%)</td>
<td></td>
</tr>
<tr>
<td>TEVAR</td>
<td>169 (77%)</td>
<td>2961 (68%)</td>
<td></td>
</tr>
<tr>
<td>Overall (Jan-Dec 2019)</td>
<td>9172 (85%)</td>
<td>105960 (71%)</td>
<td></td>
</tr>
<tr>
<td>Overall (Jan-Dec 2018)</td>
<td>8754 (85%)</td>
<td>95242 (73%)</td>
<td></td>
</tr>
</tbody>
</table>
Long-Term Follow-Up by Center in Your Region (Jan-Dec 2019)

- **Other centers in your region**
- **Your center**

29 of 29 centers displayed

*** Indicates center’s rate differs significantly from the regional rate.
Long-Term Follow-Up by Region Across VQI (Jan-Dec 2019)

Regions (regions with <3 centers with at least 10 cases not shown)

*** Indicates region’s rate differs significantly from the VQI rate.
“Others” indicates centers that do not belong to a regional group.
Discharge Medications

Procedures performed between January 1 and December 31, 2021

Includes CAS (TFEM CAS and TCAR), CEA, EVAR, INFRA, LEAMP, OAAA, PVI, SUPRA, and TEVAR procedures only. Antiplatelet is defined as ASA or P2Y12 inhibitor. Cases are excluded if (1) Discharge Statin = “No, for medical reason” OR (2) Both Discharge ASA = “No, for medical reason” AND Discharge P2Y12 inhibitor = “No, for medical reason” OR (3) An in-hospital death occurred.

The table below gives the number of procedures meeting the inclusion criteria, and the percentage of those procedures where patients received discharge medications.

<table>
<thead>
<tr>
<th></th>
<th>Number of Procedures at Your Center</th>
<th>Antiplatelet+Statin</th>
<th>Antiplatelet Only</th>
<th>Statin Only</th>
<th>Neither</th>
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<tbody>
<tr>
<td>CAS</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
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<tr>
<td>EVAR</td>
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<td>INFRA</td>
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</tr>
<tr>
<td>LEAMP</td>
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</tr>
<tr>
<td>OAAA</td>
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<td></td>
<td></td>
</tr>
<tr>
<td>PVI</td>
<td></td>
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<td></td>
<td></td>
</tr>
<tr>
<td>SUPRA</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>TEVAR</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Your Center Overall</td>
<td></td>
<td></td>
<td></td>
<td></td>
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</tr>
<tr>
<td>Your Region Overall</td>
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</tr>
<tr>
<td>VQI Overall</td>
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</table>

<table>
<thead>
<tr>
<th></th>
<th>7431</th>
<th>84%</th>
<th>9%</th>
<th>4%</th>
<th>3%</th>
</tr>
</thead>
<tbody>
<tr>
<td>VQI Overall</td>
<td>94988</td>
<td>86%</td>
<td>9%</td>
<td>3%</td>
<td>2%</td>
</tr>
</tbody>
</table>
Discharge Antiplatelet+Statin by Center in Your Region (Jan-Dec 2021)

Other centers in your region  Your center

Centers (centers with <10 cases not shown)

32 of 34 centers displayed

*** Indicates center’s rate differs significantly from the regional rate.

Discharge Antiplatelet+Statin by Region Across VQI (Jan-Dec 2021)

New England* Nor Cal* Midwest* Carolinas* Michigan* G. Lakes* Up Midwest* MidSouth* Mid-America* VQI So. Cal* SoVONet Pacific NW Mid-Atlantic* Canada* Virginia* New York* Rocky Mtn.* Southeast*

Regions (regions with <3 centers with at least 10 cases not shown)

*** Indicates region’s rate differs significantly from the VQI rate.
TFEM CAS ASYMP: Stroke/Death

Procedures performed between January 1 and December 31, 2021

Includes Transfemoral Carotid Artery Stenting (TFEM CAS) procedures performed on asymptomatic patients. Asymptomatic patients are patients with no ipsilateral or contralateral retinal or cortical TIA or stroke within 180 days prior to surgery. Includes procedures utilizing a femoral, brachial, or radial approach. Excludes any patient with prior vertebrobasilar TIA or stroke, prior ipsilateral CAS, CAS for intracranial treatment, or any procedure involving dissection, trauma, FMD, or “Other” lesion types. Procedures with an approach other than femoral, brachial, or radial are also excluded.

The table below gives the number of TFEM CAS procedures (performed on asymptomatic patients) meeting the inclusion criteria, and the observed and expected rates of in-hospital stroke or death for those cases.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of TFEM CAS procedures meeting inclusion criteria</td>
<td>159</td>
<td>2334</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among procedures meeting inclusion criteria</td>
<td>1.9%</td>
<td>1.7%</td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>146</td>
<td>2125</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among cases with complete data</td>
<td>2.1%</td>
<td>1.6%</td>
<td></td>
</tr>
<tr>
<td>Expected rate of stroke or death among cases with complete data</td>
<td>1.4%</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>0.46</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

*“Expected rate” is the rate estimated by a statistical model that accounts for patient characteristics, including age, gender, race, BMI, comorbidities, medication and stroke and vascular history. “Cases with complete data” include patients who have data on all of those factors.
Stroke or Death after TFEM CAS for Asymptomatic Patients by Year

Rates shown are observed rates among cases meeting inclusion criteria.
Stroke or Death after TFEM CAS for Asymptomatic Patients in Your Region (Jan-Dec 2021)

- Other centers in your region
- Your center

Centers (centers with <10 complete cases not shown)

Rates shown are among complete cases. 

7 of 15 centers displayed

Rates shown are among complete cases. 

Stroke or Death after TFEM CAS for Asymptomatic Patients by Region Across VQI (Jan-Dec 2021)

Regions (regions with <3 centers with at least 10 complete cases not shown)

Rates shown are among complete cases. 

*** Indicates center’s observed rate differs significantly from its expected rate

*** Indicates region’s observed rate differs significantly from its expected rate
TFEM CAS SYMP: Stroke/Death

Procedures performed between January 1 and December 31, 2021

Includes Transfemoral Carotid Artery Stenting (TFEM CAS) procedures performed on symptomatic patients. Symptomatic patients are patients with an ipsilateral or contralateral retinal or cortical TIA or stroke within 180 days prior to surgery. Includes procedures utilizing a femoral, brachial, or radial approach. Excludes any patient with prior vertebrobasilar TIA or stroke, prior ipsilateral CAS, CAS for intracranial treatment, or any procedure involving dissection, trauma, FMD, or “Other” lesion types. Procedures with an approach other than femoral, brachial, or radial are also excluded.

The table below gives the number of TFEM CAS procedures (performed on symptomatic patients) meeting the inclusion criteria, and the observed and expected rates of in-hospital stroke or death for those cases.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of TFEM CAS procedures meeting inclusion criteria</td>
<td>115</td>
<td></td>
<td>2316</td>
</tr>
<tr>
<td>Observed rate of stroke or death among procedures meeting inclusion criteria</td>
<td></td>
<td>4.3%</td>
<td>4.7%</td>
</tr>
<tr>
<td>Number of procedures with complete data∗</td>
<td>106</td>
<td></td>
<td>2135</td>
</tr>
<tr>
<td>Observed rate of stroke or death among cases with complete data</td>
<td></td>
<td>4.7%</td>
<td>4.5%</td>
</tr>
<tr>
<td>Expected rate of stroke or death among cases with complete data</td>
<td></td>
<td>4.6%</td>
<td>NA</td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td></td>
<td>0.82</td>
<td>NA</td>
</tr>
</tbody>
</table>

∗“Expected rate” is the rate estimated by a statistical model that accounts for patient characteristics, including age, gender, race, BMI, comorbidities, medication and stroke and vascular history. “Cases with complete data” include patients who have data on all of those factors.
Stroke or Death after TFEM CAS for Symptomatic Patients by Year

Rates shown are observed rates among cases meeting inclusion criteria.
Stroke or Death after TFEM CAS for Symptomatic Patients in Your Region (Jan-Dec 2021)

- Other centers in your region
- Your center

Centers (centers with <10 complete cases not shown)

4 of 16 centers displayed
Rates shown are among complete cases. *** Indicates center's observed rate differs significantly from its expected rate.

Stroke or Death after TFEM CAS for Symptomatic Patients by Region Across VQI (Jan-Dec 2021)

- Observed
- Expected

Regions (regions with <3 centers with at least 10 complete cases not shown)

Rates shown are among complete cases. *** Indicates region's observed rate differs significantly from its expected rate.
TCAR ASYMP: Stroke/Death

Procedures performed between January 1 and December 31, 2021

Includes TransCarotid Artery Revascularization (TCAR) procedures performed on asymptomatic patients. Asymptomatic patients are patients with no ipsilateral or contralateral retinal or cortical TIA or stroke within 180 days prior to surgery. Excludes any patient with prior vertebrobasilar TIA or stroke, prior ipsilateral CAS, CAS for intracranial treatment, or any procedure involving dissection, trauma, FMD, or “Other” lesion types. Procedures with an approach other than carotid percutaneous or carotid open are also excluded.

The table below gives the number of TCAR procedures (performed on asymptomatic patients) meeting the inclusion criteria, and the observed and expected rates of in-hospital stroke or death for those cases.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of TCAR procedures meeting inclusion criteria</td>
<td>302</td>
<td>5108</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among procedures meeting inclusion criteria</td>
<td>1.7%</td>
<td>1.3%</td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>291</td>
<td>4840</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among cases with complete data</td>
<td>1.7%</td>
<td>1.2%</td>
<td></td>
</tr>
<tr>
<td>Expected rate of stroke or death among cases with complete data</td>
<td>1.3%</td>
<td></td>
<td>NA</td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>0.44</td>
<td></td>
<td>NA</td>
</tr>
</tbody>
</table>

*“Expected rate” is the rate estimated by a statistical model that accounts for patient characteristics, including age, gender, race, BMI, comorbidities, medication and stroke and vascular history. “Cases with complete data” include patients who have data on all of those factors.
Stroke or Death after TCAR for Asymptomatic Patients by Year

Rates shown are observed rates among cases meeting inclusion criteria.
Stroke or Death after TCAR for Asymptomatic Patients in Your Region (Jan-Dec 2021)

- Other centers in your region
- Your center
- Observed
- Expected

Rates shown are among complete cases. "***" indicates center's observed rate differs significantly from its expected rate.

Stroke or Death after TCAR for Asymptomatic Patients by Region Across VQI (Jan-Dec 2021)

Rates shown are among complete cases. "***" indicates region's observed rate differs significantly from its expected rate.
TCAR SYMP: Stroke/Death

Procedures performed between January 1 and December 31, 2021

Includes TransCarotid Artery Revascularization (TCAR) procedures performed on symptomatic patients. Symptomatic patients are patients with an ipsilateral or contralateral retinal or cortical TIA or stroke within 180 days prior to surgery. Excludes any patient with prior vertebrobasilar TIA or stroke, prior ipsilateral CAS, CAS for intracranial treatment, or any procedure involving dissection, trauma, FMD, or “Other” lesion types. Procedures with an approach other than carotid percutaneous or carotid open are also excluded.

The table below gives the number of TCAR procedures (performed on symptomatic patients) meeting the inclusion criteria, and the observed and expected rates of in-hospital stroke or death for those cases.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of TCAR procedures meeting inclusion criteria</td>
<td>112</td>
<td>2611</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among procedures meeting inclusion criteria</td>
<td>1.8%</td>
<td>2.6%</td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>108</td>
<td>2498</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among cases with complete data</td>
<td>1.9%</td>
<td>2.6%</td>
<td></td>
</tr>
<tr>
<td>Expected rate of stroke or death among cases with complete data</td>
<td>2.8%</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>0.77</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

*“Expected rate” is the rate estimated by a statistical model that accounts for patient characteristics, including age, gender, race, BMI, comorbidities, medication and stroke and vascular history. “Cases with complete data” include patients who have data on all of those factors.
Stroke or Death after TCAR for Symptomatic Patients by Year

Rates shown are observed rates among cases meeting inclusion criteria.
Stroke or Death after TCAR for Symptomatic Patients in Your Region (Jan-Dec 2021)

- Other centers in your region
- Your center
- Observed
- Expected

Centers (centers with <10 complete cases not shown)
Rates shown are among complete cases. "***" indicates center’s observed rate differs significantly from its expected rate.

Stroke or Death after TCAR for Symptomatic Patients by Region Across VQI (Jan-Dec 2021)

- Midwest
- MidSouth
- Southeast
- Pacific NW
- Virgias
- SoVOnet
- VQI
- New York
- MidAtlantic
- Rocky Mtns.
- MidAmerica
- Carolinas
- New England

Regions (regions with <3 centers with at least 10 complete cases not shown)
Rates shown are among complete cases. "***" indicates region’s observed rate differs significantly from its expected rate.
CEA ASYMP: Stroke/Death

Procedures performed between January 1 and December 31, 2021

Includes Carotid Endarterectomy (CEA) procedures performed on asymptomatic patients. Asymptomatic patients are patients with no ipsilateral retinal or cortical TIA or stroke within 180 days prior to surgery. Excludes any patient with prior vertebrobasilar or non-specific TIA or stroke, prior ipsilateral CEA or CAS, or any procedure with a concomitant CABG, proximal endovascular, distal endovascular, or “Other” arterial procedure.

The table below gives the number of CEA procedures (performed on asymptomatic patients) meeting the inclusion criteria, and the observed and expected rates of in-hospital stroke or death for those cases.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of CEA procedures meeting inclusion criteria</td>
<td>720</td>
<td>10107</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among procedures meeting inclusion criteria</td>
<td>0.7%</td>
<td>0.9%</td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>702</td>
<td>9627</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among cases with complete data</td>
<td>0.7%</td>
<td>1%</td>
<td></td>
</tr>
<tr>
<td>Expected rate of stroke or death among cases with complete data</td>
<td>1%</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>0.57</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

*"Expected rate" is the rate estimated by a statistical model that accounts for patient characteristics, including age, gender, race, BMI, comorbidities, medication and stroke and vascular history. “Cases with complete data" include patients who have data on all of those factors.
Stroke or Death after CEA for Asymptomatic Patients by Year

Rates shown are observed rates among cases meeting inclusion criteria.
Stroke or Death after CEA for Asymptomatic Patients in Your Region (Jan-Dec 2021)

Centers (centers with <10 complete cases not shown)

18 of 26 centers displayed
Rates shown are among complete cases. *** Indicates center’s observed rate differs significantly from its expected rate.

Stroke or Death after CEA for Asymptomatic Patients by Region Across VQI (Jan-Dec 2021)

Regions (regions with <3 centers with at least 10 complete cases not shown)

Rates shown are among complete cases. *** Indicates region’s observed rate differs significantly from its expected rate.
CEA SYMP: Stroke/Death

Procedures performed between January 1 and December 31, 2021

Includes Carotid Endarterectomy (CEA) procedures performed on symptomatic patients. Symptomatic patients are patients with an ipsilateral retinal or cortical TIA or stroke within 180 days prior to surgery. Excludes any patient with prior vertebrobasilar or non-specific TIA or stroke, prior ipsilateral CEA or CAS, or any procedure with a concomitant CABG, proximal endovascular, distal endovascular, or “Other” arterial procedure.

The table below gives the number of CEA procedures (performed on symptomatic patients) meeting the inclusion criteria, and the observed and expected rates of in-hospital stroke or death for those cases.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of CEA procedures meeting inclusion criteria</td>
<td>337</td>
<td>5069</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among procedures meeting inclusion criteria</td>
<td>2.4%</td>
<td>2.2%</td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>324</td>
<td>4888</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among cases with complete data</td>
<td>2.2%</td>
<td>2.2%</td>
<td></td>
</tr>
<tr>
<td>Expected rate of stroke or death among cases with complete data</td>
<td>2.2%</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>0.85</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

*“Expected rate” is the rate estimated by a statistical model that accounts for patient characteristics, including age, gender, race, BMI, comorbidities, medication and stroke and vascular history. “Cases with complete data” include patients who have data on all of those factors.
Stroke or Death after CEA for Symptomatic Patients by Year

Rates shown are observed rates among cases meeting inclusion criteria.
Stroke or Death after CEA for Symptomatic Patients in Your Region (Jan-Dec 2021)

Centers (centers with <10 complete cases not shown)

Rates shown are among complete cases. *** Indicates center’s observed rate differs significantly from its expected rate.

Stroke or Death after CEA for Symptomatic Patients by Region Across VQI (Jan-Dec 2021)

Regions (regions with <3 centers with at least 10 complete cases not shown)

Rates shown are among complete cases. *** Indicates region’s observed rate differs significantly from its expected rate.
CEA ASYMP: Postop LOS>1 Day

Procedures performed between January 1 and December 31, 2021

Includes Carotid Endarterectomy (CEA) procedures performed on asymptomatic patients. Asymptomatic patients are patients with no ipsilateral retinal or cortical TIA or stroke within 180 days prior to surgery. Excludes any patient with prior vertebrobasilar or non-specific TIA or stroke, prior ipsilateral CEA or CAS, or any procedure with a concomitant CABG, proximal endovascular, distal endovascular, or “Other” arterial procedure. Procedures where in-hospital death occurred with postoperative LOS>1 day are also excluded. Postoperative LOS is based on the midnight rule used for hospital billing.

The table below gives the number of CEA procedures (performed on asymptomatic patients) meeting the inclusion criteria, and the observed and expected rates of postoperative LOS>1 Day for those cases.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of CEA procedures meeting inclusion criteria</td>
<td>720</td>
<td>10111</td>
<td></td>
</tr>
<tr>
<td>Observed rate of LOS&gt;1 day among procedures meeting inclusion criteria</td>
<td>16.2%</td>
<td>21.7%</td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>702</td>
<td>9628</td>
<td></td>
</tr>
<tr>
<td>Observed rate of LOS&gt;1 day among cases with complete data</td>
<td>16.4%</td>
<td>21.6%</td>
<td></td>
</tr>
<tr>
<td>Expected rate of LOS&gt;1 day among cases with complete data</td>
<td>21.9%</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>0</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

*“Expected rate” is the rate estimated by a statistical model that accounts for patient characteristics, including age, gender, race, BMI, comorbidities, medication and stroke and vascular history. “Cases with complete data” include patients who have data on all of those factors.
Postop LOS > 1 Day after CEA for Asymptomatic Patients by Year

Rates shown are observed rates among cases meeting inclusion criteria.
Postop LOS>1 Day after CEA for Asymptomatic Patients in Your Region (Jan-Dec 2021)

- Other centers in your region
- Your center
- Observed
- Expected

18 of 26 centers displayed
Rates shown are among complete cases. "***" indicates center's observed rate differs significantly from its expected rate.

Postop LOS>1 Day after CEA for Asymptomatic Patients by Region Across VQI (Jan-Dec 2021)

- Observed
- Expected

Regions (regions with <3 centers with at least 10 complete cases not shown)
Rates shown are among complete cases. "***" indicates region's observed rate differs significantly from its expected rate.
CEA SYMP: Postop LOS>1 Day

Procedures performed between January 1 and December 31, 2021

Includes Carotid Endarterectomy (CEA) procedures performed on symptomatic patients. Symptomatic patients are patients with an ipsilateral retinal or cortical TIA or stroke within 180 days prior to surgery. Excludes any patient with prior vertebrobasilar or non-specific TIA or stroke, prior ipsilateral CEA or CAS, or any procedure with a concomitant CABG, proximal endovascular, distal endovascular, or “Other” arterial procedure. Procedures where in-hospital death occurred with postoperative LOS≤1 day are also excluded. Postoperative LOS is based on the midnight rule used for hospital billing.

The table below gives the number of CEA procedures (performed on symptomatic patients) meeting the inclusion criteria, and the observed and expected rates of postoperative LOS>1 Day for those cases.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of CEA procedures meeti...</td>
<td>337</td>
<td>5069</td>
<td></td>
</tr>
<tr>
<td>Observed rate of LOS&gt;1 day amo...</td>
<td>38.3%</td>
<td>40.8%</td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>324</td>
<td>4888</td>
<td></td>
</tr>
<tr>
<td>Observed rate of LOS&gt;1 day amo...</td>
<td>38.6%</td>
<td>40.9%</td>
<td></td>
</tr>
<tr>
<td>Expected rate of LOS&gt;1 day amo...</td>
<td>42.9%</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>0.13</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

*“Expected rate” is the rate estimated by a statistical model that accounts for patient characteristics, including age, gender, race, BMI, comorbidities, medication and stroke and vascular history. “Cases with complete data” include patients who have data on all of those factors.
Postop LOS > 1 Day after CEA for Symptomatic Patients by Year

Rates shown are observed rates among cases meeting inclusion criteria.
Postop LOS>1 Day after CEA for Symptomatic Patients in Your Region (Jan-Dec 2021)

- Other centers in your region
- Your center
- Observed
- Expected

Centers (centers with <10 complete cases not shown)

Rates shown are among complete cases. *** indicates center's observed rate differs significantly from its expected rate.

Postop LOS>1 Day after CEA for Symptomatic Patients by Region Across VQI (Jan-Dec 2021)

- Observed
- Expected

Regions (regions with <3 centers with at least 10 complete cases not shown)

Rates shown are among complete cases. *** indicates region's observed rate differs significantly from its expected rate.
EVAR: Postop LOS>2 Days

Procedures performed between January 1 and December 31, 2021

Includes Endovascular AAA Repair (EVAR) procedures. Excludes any procedure with ruptured aneurysm. Procedures where in-hospital death occurred with postoperative LOS≤2 days are also excluded. Postoperative LOS is based on the midnight rule used for hospital billing.

The table below gives the number of EVAR procedures meeting the inclusion criteria, and the observed and expected rates of postoperative LOS>2 Days for those cases.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of EVAR procedures</td>
<td>430</td>
<td>7138</td>
<td></td>
</tr>
<tr>
<td>meeting inclusion criteria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed rate of LOS&gt;2 days</td>
<td>17%</td>
<td>16.7%</td>
<td></td>
</tr>
<tr>
<td>among procedures meeting</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>inclusion criteria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of procedures with</td>
<td>387</td>
<td>6628</td>
<td></td>
</tr>
<tr>
<td>complete data*</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed rate of LOS&gt;2 days</td>
<td>16.8%</td>
<td>16.7%</td>
<td></td>
</tr>
<tr>
<td>among cases with complete data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected rate of LOS&gt;2 days</td>
<td>16.3%</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>among cases with complete data</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of</td>
<td>0.78</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>observed and expected rates</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

*"Expected rate" is the rate estimated by a statistical model that accounts for patient characteristics, including age, gender, race, BMI, comorbidities, medication and stroke and vascular history. “Cases with complete data” include patients who have data on all of those factors.
Rates shown are observed rates among cases meeting inclusion criteria.
Postop LOS>2 Days after EVAR in Your Region (Jan-Dec 2021)

Centers (centers with <10 complete cases not shown)

Rates shown are among complete cases. *** indicates center’s observed rate differs significantly from its expected rate.

Postop LOS>2 Days after EVAR by Region Across VQI (Jan-Dec 2021)

Regions (regions with <3 centers with at least 10 complete cases not shown)

Rates shown are among complete cases. *** indicates region’s observed rate differs significantly from its expected rate.
EVAR: Sac Diameter Reporting

Procedures performed between January 1 and December 31, 2019

Includes Endovascular AAA Repair (EVAR) procedures. Excludes patients who were converted to open or died within 21 months of surgery.

The table below gives the number of EVAR procedures meeting the inclusion criteria, and the percentage of those procedures where a sac diameter was reported between 9 and 21 months post-procedure.

<table>
<thead>
<tr>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of EVAR procedures meeting inclusion criteria</td>
<td>444</td>
<td>7112</td>
</tr>
<tr>
<td>Percentage with sac diameter reported between 9 and 21 months post-procedure</td>
<td>61.7%</td>
<td>58%</td>
</tr>
</tbody>
</table>
EVAR Sac Diameter Reporting by Year

- 100%
- 90%
- 80%
- 70%
- 60%
- 50%
- 40%
- 30%
- 20%
- 10%
- 0%

- Your Center
- Your Region
- VQI Overall

2016 2017 2018 2019
EVAR Sac Diameter Reporting in Your Region (Jan-Dec 2019)

- Other centers in your region
- Your center

12 of 18 centers displayed

*** Indicates center’s rate differs significantly from the regional rate.

EVAR Sac Diameter Reporting Unblinding Legend for Your Region

<table>
<thead>
<tr>
<th>Index</th>
<th>Medical Center Name</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>Sentara Norfolk General Hospital</td>
</tr>
<tr>
<td>2</td>
<td>Winchester Medical Center</td>
</tr>
<tr>
<td>3</td>
<td>Sentara Virginia Beach General Hospital</td>
</tr>
<tr>
<td>4</td>
<td>University of Virginia Health System</td>
</tr>
<tr>
<td>5</td>
<td>United Hospital Center</td>
</tr>
<tr>
<td>6</td>
<td>Carilion Roanoke Memorial Hospital</td>
</tr>
<tr>
<td>7</td>
<td>Inova Fairfax Hospital</td>
</tr>
<tr>
<td>8</td>
<td>Sentara RMH Medical Center</td>
</tr>
<tr>
<td>9</td>
<td>West Virginia University Hospital</td>
</tr>
<tr>
<td>10</td>
<td>Charleston Area Medical Center</td>
</tr>
<tr>
<td>11</td>
<td>Inova Fair Oaks Hospital</td>
</tr>
<tr>
<td>12</td>
<td>Lynchburg General Hospital</td>
</tr>
</tbody>
</table>
EVAR Sac Diameter Reporting by Region Across VQI (Jan-Dec 2019)

Regions (regions with <3 centers with at least 10 cases not shown)

*** Indicates region’s rate differs significantly from the VQI rate.
EVAR: SVS AAA Diameter Guideline

Procedures performed between January 1 and December 31, 2021

Includes Endovascular AAA Repair (EVAR) procedures. Excludes any non-elective procedure. SVS AAA diameter guideline is ≥5 cm for Women and ≥5.5cm for men. If the patient has any iliac aneurysm, the guideline is considered met regardless of AAA diameter.

The table below gives the number of EVAR procedures meeting the inclusion criteria, and the percentage of those procedures meeting the SVS AAA diameter guideline.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of EVAR procedures meeting inclusion criteria</td>
<td></td>
<td>347</td>
<td>6335</td>
</tr>
<tr>
<td>Percentage meeting SVS AAA diameter guideline</td>
<td></td>
<td>71.2%</td>
<td>75.3%</td>
</tr>
</tbody>
</table>
EVAR SVS AAA Diameter Guideline in Your Region (Jan-Dec 2021)

Other centers in your region vs Your center

Centers (centers with <10 cases not shown)

13 of 22 centers displayed

*** Indicates center’s rate differs significantly from the regional rate.

EVAR SVS AAA Diameter Guideline by Region Across VQI
(Jan-Dec 2021)

Regions (regions with <3 centers with at least 10 cases not shown)

*** Indicates region’s rate differs significantly from the VQI rate.
TEVAR: Sac Diameter Reporting

Procedures performed between January 1 and December 31, 2019

Includes Thoracic Endovascular Aortic Repair (TEVAR) procedures for aneurysm or aneurysm from dissection. Excludes procedures where no aortic device was implanted or patients who were converted to open or died within 21 months of surgery.

The table below gives the number of TEVAR procedures meeting the inclusion criteria, and the percentage of those procedures where a sac diameter was reported between 9 and 21 months post-procedure.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of TEVAR procedures meeting inclusion criteria</td>
<td>88</td>
<td>1703</td>
<td></td>
</tr>
<tr>
<td>Percentage with sac diameter reported between 9 and 21 months post-procedure</td>
<td>64.8%</td>
<td>59.3%</td>
<td></td>
</tr>
</tbody>
</table>
TEVAR Sac Diameter Reporting in Your Region (Jan-Dec 2019)

Other centers in your region • Your center

Centers (centers with <10 cases not shown)

4 of 9 centers displayed

*** Indicates center's rate differs significantly from the regional rate.

TEVAR Sac Diameter Reporting by Region Across VQI (Jan-Dec 2019)

Regions (regions with <3 centers with at least 10 cases not shown)

*** Indicates region's rate differs significantly from the VQI rate.
OAAA: In-Hospital Mortality

Procedures performed between January 1, 2018 and December 31, 2021
Includes Open AAA (OAAA) procedures. Excludes any patient with a ruptured aneurysm.

The table below gives the number of OAAA procedures meeting the inclusion criteria, and the observed and expected rates of in-hospital death for those cases.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of OAAA procedures meeting inclusion criteria</td>
<td>179</td>
<td>4503</td>
<td></td>
</tr>
<tr>
<td>Observed rate of In-Hospital Mortality among procedures meeting inclusion criteria</td>
<td>7.8%</td>
<td>4.2%</td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>162</td>
<td>4201</td>
<td></td>
</tr>
<tr>
<td>Observed rate of In-Hospital Mortality among cases with complete data</td>
<td>6.8%</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Expected rate of In-Hospital Mortality among cases with complete data</td>
<td>5.1%</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>0.28</td>
<td>NA</td>
<td></td>
</tr>
</tbody>
</table>

*“Expected rate” is the rate estimated by a statistical model that accounts for patient characteristics, including age, gender, race, BMI, comorbidities, medication and stroke and vascular history. “Cases with complete data” include patients who have data on all of those factors.
In-Hospital Death after OAAA by Year

Rates shown are observed rates among cases meeting inclusion criteria.
In-Hospital Death after OAAA in Your Region (Jan 2018-Dec 2021)

Other centers in your region
- Your center

Observed
- Expected

Rates shown are among complete cases. "***" indicates center's observed rate differs significantly from its expected rate.

In-Hospital Death after OAAA by Region Across VQI (Jan 2018-Dec 2021)

Observed
- Expected

Rates shown are among complete cases. "***" indicates region's observed rate differs significantly from its expected rate.
OAAA: SVS Cell-Saver Guideline

Procedures performed between January 1, 2018 and December 31, 2021

Includes Open AAA (OAAA) procedures. Excludes any patient with EBL ≤500 ml. SVS cell-saver guideline is met if cell salvage or ultrafiltration device was used.

The table below gives the number of OAAA procedures meeting the inclusion criteria, and the percentage of those procedures meeting the SVS cell-saver guideline.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of OAAA procedures</td>
<td>185</td>
<td>4576</td>
<td></td>
</tr>
<tr>
<td>meeting inclusion criteria</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Percentage meeting SVS</td>
<td>95.7%</td>
<td>92.4%</td>
<td></td>
</tr>
<tr>
<td>cell-saver guideline</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
OAAA Cell-Saver Guideline in Your Region (Jan 2018-Dec 2021)

Other centers in your region
Your center

Centers (centers with <10 cases not shown)

7 of 15 centers displayed

*** Indicates center’s rate differs significantly from the regional rate.

OAAA Cell-Saver Guideline by Region Across VQI (Jan 2018-Dec 2021)

Regions (regions with <3 centers with at least 10 cases not shown)

*** Indicates region’s rate differs significantly from the VQI rate.
OAAA: SVS Iliac Inflow Guideline

Procedures performed between January 1, 2018 and December 31, 2021

Includes Open AAA (OAAA) procedures. SVS iliac inflow guideline is met if preservation of flow was maintained to at least one internal iliac artery.

The table below gives the number of OAAA procedures meeting the inclusion criteria, and the percentage of those procedures meeting the SVS iliac inflow guideline.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of OAAA procedures meeting inclusion criteria</td>
<td>196</td>
<td>5134</td>
<td></td>
</tr>
<tr>
<td>Percentage meeting SVS iliac inflow guideline</td>
<td>97.4%</td>
<td>97.6%</td>
<td></td>
</tr>
</tbody>
</table>
PVI CLAUD: ABI/Toe Pressure

Procedures performed between January 1 and December 31, 2021

Includes Peripheral Vascular Intervention (PVI) procedures for mild, moderate, or severe claudication. “ABI/Toe Pressure Assessment” indicates at least one ABI or toe pressure assessment was made prior to PVI for the side of the procedure, or on both sides for bilateral and aortic procedures.

The table below gives the number of PVI procedures meeting the inclusion criteria, and the percentage of those procedures in which an ABI or toe pressure was assessed prior to PVI.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of PVI procedures meeting inclusion criteria</td>
<td>1028</td>
<td>14657</td>
<td></td>
</tr>
<tr>
<td>Percentage with ABI/toe pressure assessment</td>
<td>85.5%</td>
<td>74.8%</td>
<td></td>
</tr>
</tbody>
</table>
ABI/Toe Pressure Assessment before PVI for Claudication by Year

Your Center  Your Region  VQI Overall
ABI/Toe Pressure Assessment before PVI for Claudication in Your Region (Jan-Dec 2021)

- Other centers in your region
- Your center

16 of 22 centers displayed

*** indicates center's rate differs significantly from the regional rate.

ABI/Toe Pressure Assessment before PVI for Claudication by Region Across VQI (Jan-Dec 2021)

- G Lakes*
- Carolinas*
- Midwest*
- Midwest*
- Midwest*
- VQI
- New England*
- So. Cal.
- Nor Cal.
- Canada
- SoCalnet*
- Rocky Mtn.
- New York*
- Southeast

Regions (regions with <3 centers with at least 10 cases not shown)

*** indicates region's rate differs significantly from the VQI rate.
INFRA CLTI: Major Complications

Procedures performed between January 1 and December 31, 2021

Includes Infrainguinal Bypass (INFRA) procedures for rest pain, tissue loss, or acute ischemia. Major complications are defined as in-hospital death, ipsilateral BK or AK amputation, or graft occlusion.

The table below gives the number of INFRA procedures meeting the inclusion criteria, and the percentage of those procedures that resulted in in-hospital death, ipsilateral BK or AK amputation, or graft occlusion.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of INFRA procedures meeting inclusion criteria</td>
<td>410</td>
<td>5187</td>
<td></td>
</tr>
<tr>
<td>Percentage with major complications</td>
<td>4.6%</td>
<td>4.9%</td>
<td></td>
</tr>
</tbody>
</table>
SUPRA CLTI: Major Complications

Procedures performed between January 1 and December 31, 2021

Includes Suprainguinal Bypass (SUPRA) procedures for rest pain, tissue loss, or acute ischemia. Major complications are defined as in-hospital death, ipsilateral BK or AK amputation, or graft occlusion.

The table below gives the number of SUPRA procedures meeting the inclusion criteria, and the percentage of those procedures that resulted in in-hospital death, ipsilateral BK or AK amputation, or graft occlusion.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of SUPRA procedures meeting inclusion criteria</td>
<td>101</td>
<td></td>
<td>1162</td>
</tr>
<tr>
<td>Percentage with major complications</td>
<td>7.9%</td>
<td>8.1%</td>
<td></td>
</tr>
</tbody>
</table>
Major Complications after SUPRA for CLTI in Your Region (Jan-Dec 2021)

- Other centers in your region
- Your center

Centers (centers with <10 cases not shown)

4 of 13 centers displayed

** Indicates center’s rate differs significantly from the regional rate.

Major Complications after SUPRA for CLTI by Region Across VQI (Jan-Dec 2021)

Regions (regions with <3 centers with at least 10 cases not shown)

** Indicates region’s rate differs significantly from the VQI rate.
LEAMP: Postop Complications

Procedures performed between January 1 and December 31, 2021

Includes Lower-Extremity Amputation (LEAMP) procedures. Postoperative complications are defined as myocardial infarction, dysrhythmia, congestive heart failure, surgical site infection, renal complication, or respiratory complication.

The table below gives the number of LEAMP procedures meeting the inclusion criteria, and the percentage of those procedures that resulted in a postoperative complication.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of LEAMP procedures meeting inclusion criteria</td>
<td>876</td>
<td>3080</td>
<td></td>
</tr>
<tr>
<td>Percentage with postoperative complications</td>
<td>10.4%</td>
<td>11.7%</td>
<td></td>
</tr>
</tbody>
</table>
Postop Complications after LEAMP in Your Region (Jan-Dec 2021)

- Other centers in your region
- Your center

19 of 19 centers displayed
*** Indicates center’s rate differs significantly from the regional rate.

Postop Complications after LEAMP by Region Across VQI (Jan-Dec 2021)

Regions (regions with <3 centers with at least 10 cases not shown)

*** Indicates region’s rate differs significantly from the VQI rate.
HDA: Primary AVF vs. Graft

Procedures performed between January 1 and December 31, 2021

Includes Hemodialysis Access (HDA) procedures. Excludes procedures where Access Type = Endo AVF or patients with a previous access procedure in the same arm.

The table below gives the number of HDA procedures meeting the inclusion criteria, and the percentage of those procedures that were primary AVF.

<table>
<thead>
<tr>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of HDA procedures meeting inclusion criteria</td>
<td>991</td>
<td>4829</td>
</tr>
<tr>
<td>Percentage with primary AVF</td>
<td>85.1%</td>
<td>82.4%</td>
</tr>
</tbody>
</table>
Primary AVF Access in Your Region (Jan-Dec 2021)

- Other centers in your region
- Your center

16 of 17 centers displayed

*** Indicates center’s rate differs significantly from the regional rate.

Primary AVF Access by Region Across VQI (Jan-Dec 2021)

Midwest
New England
Rocky Mtn
New York
Virginia
Vgl
G. Lakes
Carolinas
Mid-Atlantic
Southeast
Mid-America

Regions (regions with <3 centers with at least 10 cases not shown)

*** Indicates region’s rate differs significantly from the VQI rate.
**IVCF: Filter Retrieval Reporting**

Procedures performed between January 1 and December 31, 2019

Includes Inferior Vena Cava Filter (IVCF) procedures. Excludes filters with permanent planned duration, patients who have expired, or patients where no follow-up was possible.

The table below gives the number of procedures meeting the inclusion criteria, and the percentage of those procedures in which the filter was reported as retrieved (or retrieval was attempted) at any time post-procedure. Because follow-up is critical for assessing filter retrieval, cases meeting the inclusion criteria are broken down into those with follow-up records (at least 1 follow-up record) and those without follow-up records.

<table>
<thead>
<tr>
<th></th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of IVCF procedures meeting inclusion criteria</td>
<td>270</td>
<td>1166</td>
<td></td>
</tr>
<tr>
<td>Number without follow-up records</td>
<td>0</td>
<td>206</td>
<td></td>
</tr>
<tr>
<td>Number with follow-up records</td>
<td>270</td>
<td>960</td>
<td></td>
</tr>
<tr>
<td>Percentage with Filter Retrieval, or Attempt at Retrieval</td>
<td>67%</td>
<td>54.5%</td>
<td></td>
</tr>
<tr>
<td>Percentage not retrieved because No Follow-up Records Created</td>
<td>0%</td>
<td>17.7%</td>
<td></td>
</tr>
<tr>
<td>Percentage not retrieved because Not Clinically Indicated</td>
<td>18.5%</td>
<td>17.9%</td>
<td></td>
</tr>
<tr>
<td>Percentage not retrieved because Patient Declined</td>
<td>1.9%</td>
<td>2.5%</td>
<td></td>
</tr>
<tr>
<td>Percentage not retrieved because Lost to Follow-Up</td>
<td>7%</td>
<td>2.7%</td>
<td></td>
</tr>
<tr>
<td>Percentage not retrieved because Deemed Too Late for Removal</td>
<td>0%</td>
<td>0.4%</td>
<td></td>
</tr>
<tr>
<td>Percentage not retrieved because Planned Later Removal</td>
<td>3.3%</td>
<td>3.7%</td>
<td></td>
</tr>
<tr>
<td>Percentage not retrieved because No Reason Given</td>
<td>3%</td>
<td>1.4%</td>
<td></td>
</tr>
</tbody>
</table>
IVC Filter Retrieval Reporting by Year

- Your Center
- Your Region
- VQI Overall

Year:
- 2016
- 2017
- 2018
- 2019

Percentage:
- 100%
- 90%
- 80%
- 70%
- 60%
- 50%
- 40%
- 30%
- 20%
- 10%
- 0%
IVC Filter Retrieval Reporting in Your Region (Jan-Dec 2019)

- Other centers in your region
- Your center

Centers (centers with <10 cases not shown)

9 of 17 centers displayed

*** Indicates center's rate differs significantly from the regional rate.

IVC Filter Retrieval Reporting by Region Across VQI (Jan-Dec 2019)

- Virginias*
- New York
- VQI
- G. Lakes
- Carolinas*

Regions (regions with <3 centers with at least 10 cases not shown)

*** Indicates region's rate differs significantly from the VQI rate.
TIME FOR A BREAK
VVSG QI Presentations

- Vascular Rehab Program – Dr. Sam Steerman, Sentara
- Long-Term Follow-Up – Chris Sytsma, Winchester Medical Center
- EVAR Multi-Regional Project Update – Stacy Giardina, WVU Medicine
SUPERVISED EXERCISE THERAPY

Samuel N. Steerman, MD, FACS, RPVI
EVMS Assistant Professor of Surgery
Sentara Vascular Specialists
PREVALENCE

Peripheral Artery Disease (PAD) refers to a chronic systemic atherosclerotic condition in the lower extremities that obstructs blood flow, creating a deficit in oxygen delivery to the leg muscles.

Incidence: 8 – 8.5 million Americans \( \geq 40 \) yoa have PAD; approximately 7.2% of the population

Of these, approximately 20-40% suffer its primary symptom, intermittent claudication (IC: described as cramping or tightening discomfort occurring in one or both calves, but sometimes in the buttocks or thighs, typically with exertion and relieved with rest.)

Estimated \( \sim 202 \) million people worldwide have PAD
PAD HEALTH IMPACT

RISK FACTORS:

SAME AS WITH OTHER FORMS OF ATHEROSCLEROSIS---

▪ BUT MORE HIGHLY ASSOCIATED WITH AGE, TOBACCO USE, DIABETES, HTN, AND HYPERLIPIDEMIA

▪ Long-term tobacco usage is primary risk factor and also most manageable
BACKGROUND

- AACVPR first introduced Peripheral Artery Disease as an extension of a cardiovascular rehab program in 2002 with its PAD Symposium.

- CLEVER trial published in 2014 by the Univ of MN
  - compared the cost-effectiveness of supervised exercise, stenting and ‘optimal medical care’ in treatment of claudication
  - found that, given only marginal benefits of stenting over exercise, there is significant rationale for supporting exercise over intervention for symptom management and quality of life

- Early 2017, VascularCures (formerly Vascular Disease Foundation), along with AACVPR, provided the online PAD Exercise Training Toolkit in preparation for implementation of PAD rehab programs.
May 2017: CMS published a Decision Memo for Supervised Exercise Training for Symptomatic PAD (SET-PAD) (CAG-00449N) that detailed components and requirements for PAD rehab.

October 2017 Addendum B: Official determination of coverage at $54.55/copay $10.91

Uncertain support from private insurance companies to date
## Two Major Goals in Treating Patients with PAD

<table>
<thead>
<tr>
<th>Limb Outcomes</th>
<th>Cardiovascular morbidity and mortality outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>▪ Improved ability to walk                                                    ▪ Decrease in morbidity from non-fatal MI and stroke</td>
<td></td>
</tr>
<tr>
<td>- Increase in peak walking distance                                         ▪ Decrease in cardiovascular mortality from fatal MI and stroke</td>
<td></td>
</tr>
<tr>
<td>- Improvement in quality-of-life (QoL)                                     ▪</td>
<td></td>
</tr>
<tr>
<td>▪ Prevention of progression to CLI and amputation                            ▪</td>
<td></td>
</tr>
</tbody>
</table>
Targeted Therapies for PAD

▪ Since PAD is a form of atherosclerosis, the same interventions for improving quality of life and reducing morbidity/mortality can be applied to treatment of PAD.

▪ Exercise Training - This has been studied for over 40 years and has demonstrated efficacy in improvement of exercise performance, functional capacity and quality of life. Both local and systemic improvements noted.

▪ Pharmacological Therapy - Dual antiplatelet therapy including aspirin and Clopidogrel is typically recommended, as well as Cilostazol (Pletal- 100 mg bid) as effective drugs used to treat PAD symptoms and progression (Pletal not indicated with CHF).
Targeted Therapies for PAD

- Risk Factor Management:
  - Tobacco Cessation - Education, Referral, Pharmacotherapy
  - Blood Sugar Management - Target HbA1C < 7.0% in addition to foot care (reducing risk of limb loss)
  - Lipid Management targeted to 2013 ACC/AHA guidelines
  - Hypertension - Goal < 140/90 for non-diabetics, and <130/80 for diabetics or CKD. Beta-blockers and ACE-I may be indicated/effective.
EXERCISE AS THERAPY

- Numerous studies have demonstrated the unequivocal benefit of exercise on improving debilitating symptoms of IC in patients with PAD.

- Mechanisms are not entirely clear, but likely similar to cardiovascular changes with exercise where increased blood flow improves ischemic reperfusion through probable collateral and redistributed blood flow, reduced endothelial dysfunction, increased vascular dilation, enhanced ATP production, and attenuated inflammatory responses.
- Studies investigating the benefit of alternative conditioning modes (cycling, arm ergometry, resistance training) suggest they may be beneficial in improving symptoms, but the cornerstone of therapy should still be walking exercise.
EXERCISE THERAPY

- Decrease symptoms of intermittent claudication
- Improve distance tolerated to pain threshold
- Slowed progression of disease
- Improved quality of life and overall health
  - similar to cardiopulmonary rehab programs
PRE-PROGRAM ASSESSMENT

- Patients should receive medical clearance prior to beginning a PAD exercise program.
  
  - **Contraindications:** Unstable angina, decompensated heart failure, uncontrolled cardiac arrhythmias, severe or symptomatic valvular disease, and critical limb ischemia.
  
  - **Relative contraindications:** severe joint disease, uncontrolled diabetes, uncontrolled hypertension
PRE-PROGRAM ASSESSMENT

1. Hemodynamic assessments- ABI (ratio of ankle-to-arm systolic blood pressures): BP measurements using a doppler in the dorsalis pedis, posterior tibial and brachial arteries are compared and duplicated for accuracy

2. Resting vitals including blood pressure, heart rate, baseline EKG helpful

3. Medical History/exercise history/CAD risk factors
4. Functional Status Questionnaires - evaluate patient’s function as impacted by disease limitations.
   • Walking Impairment Questionnaire (WIC)
   • VascuQoL
     ▪ Peripheral Artery Questionnaire
     ▪ Low Level Physical Activity Recall Questionnaire
     ▪ Others, not cited specifically in Toolkit (CLAU-S, CCCQ)

5. Quality of Life Questionnaires - not disease-specific
   • SF-36, Sickness Impact Profile, Functional Status Questionnaire
EXERCISE EVALUATION

▪ The value of typical pre-program stress testing is limited by inability to achieve high enough workload to detect underlying abnormalities, such as arrhythmias or ST-T ischemic changes.

▪ Functional Testing:
  ▪ Treadmill testing recommended—various protocols suggested involving walking at initial speed of ~1.5-2mph with gradual incremental increases in grade every 2-3 minutes until moderate pain (3-4/5 on 5-point pain scale) occurs. The workload that evokes initial claudication symptoms is considered the initial training workload.
  ▪ Alternatively, a Six Minute Walk Test or Shuttle Test may be used to establish baseline functional assessment
SET-PAD PROGRAM REQUIREMENTS

▪ As with cardiopulmonary rehab therapy, patients must be REFERRED following a face to face visit with the physician responsible for PAD treatment (ie vascular physician)

▪ Programs are 36 sessions over 12 weeks, with additional sessions up to 72 over an extended period of time at the discretion of the local MAC that would require a second referral (3 – 6 months of exercise therapy is recommended for optimal outcome and behavioral adherence)
SET-PAD PROGRAM REQUIREMENTS

▪ Sessions should be 30 – 60 minutes incorporating therapeutic exercise in which patients are encouraged to walk to the point of maximal pain
  ▪ Primarily treadmill-driven with protocols to gradually increase speed and grade to improve walking distance

▪ Education to address vascular risk factors and lifestyle changes, especially tobacco cessation and adherence to exercise
EXERCISE SESSION

- Sessions should be documented to include resting and post-program vitals (HR, BP, SaO2 and BS if appropriate), individualized exercise modality workload and duration with hemodynamic responses, patient report of exercise response including RPE, assessment of exercise tolerance and goals, and supervising physician.
EXERCISE PROTOCOLS

- Following traditional warm-up to prepare body for increasing cardiovascular demands, treadmill walking ensues with initial exercise intensity established from the pre-program functional evaluation. Typically, patients begin ~2mph (or at speed they can tolerate) at a grade that brings on the onset of claudication (2/5 PAIN SCALE)

- Patients walk to mild-moderate pain (~3-4/5), then sit and rest until pain completely resolves

- Patient resumes walking at same pace, repeating procedure, with initial goal of at least 15 minutes of TM walking time

- Ultimate goal is to increase TM walking time to 45-50 minutes (including rest periods) in addition to warm-up and cool-down exercises
EXERCISE PROTOCOLS

▪ Progression of walking workload should only be initiated at the beginning of each session, not during the session in progress, so that patients walk at a constant workload throughout each session.

▪ Once the patient is able to walk 8 minutes at a constant workload without experiencing moderate pain (4/5), grade is increased by 1 - 2% increments for the following exercise session.

▪ Once the patient is able to walk at a 10% grade for 8 minutes, the speed is increased by 0.1 - 0.2 mph up to 3 mph at the next session.

▪ Once the patient tolerates 3 mph and 10% grade, the grade is increased by 1 – 2% increments up to 15% grade, followed by 0.1 – 0.2 mph increments.
EXERCISE PROTOCOLS

- Cooldown exercises to include total body stretches and flexibility, along with calf and leg stretches, may alleviate any post-exercise discomforts.
EDUCATION

▪ Encourage attendance at group education classes for CAD patients, including nutrition counseling, exercise prescription, stress management, pharmacotherapy

▪ Tobacco cessation education- 3 pronged: physiological, psychological/emotional, behavioral aspects of addiction and behavior change. Referral to community resources with follow up each session (documented)

▪ Exercise maintenance- home exercise and activity guidelines with accountability (exercise log)
POST-PROGRAM ASSESSMENT

- Include treadmill test or other functional assessment performed at beginning
- Repeat QoL and disease-specific questionnaires
- Repeat ABI (lower number indicates worsening of PAD)
- Discharge questionnaire/evaluation
Sentara Vascular Rehab Initiation

- Core Team developed:
  - Vascular Rehab Handbook
  - Epic Referral Note to comply with CMS requirements
  - EMR Orders & Charges
  - Clinic Education & Tip Sheets
  - Physician Education & Tip Sheets
  - Education & Marketing Flyers
MEET THE TEAM

Every member of your care team has a passion for helping people with PAD. Your rehab specialists work closely with your doctors to ensure that you receive the services you need to enjoy a more active life. Your vascular rehab team includes:

- Vascular Surgeons
- Vascular Rehab Specialists
- Exercise Physiologists
- Certified Diabetes Educators
- Registered Dietitians

Blue Ridge Locations:

Sentara RMH Medical Center
2010 Health Campus Drive
Harrisonburg, VA 22801
540-689-1888

Sentara Martha Jefferson Health & Wellness Center
Sentara Martha Jefferson Hospital
590 Peter Jefferson Parkway
Suite 200
Charlottesville, VA 22911
434-654-4510

SentaraVascularSpecialists.com

Sentara Healthcare complies with applicable Federal Civil Rights Laws and does not exclude, deny benefits to, or otherwise discriminate against any person on the grounds of race, color, religion, national origin, age, sex, sexual orientation, gender identity or gender expression, or any disability or handicap.
SPECIALIZED VASCULAR REHAB FOR LEG PAIN

If you have peripheral artery disease (PAD), it can be painful to walk even for a short time. At Sentara, our vascular rehab program can help significantly reduce your leg pain and help you to get back to the activities you enjoy. Rely on us for:

• AN EXPERT TEAM
  You’ll work with our experienced rehabilitation specialists who include registered nurses, an exercise physiologist, a registered dietitian, & a certified diabetes educator.

• MEDICARE-APPROVED VASCULAR REHAB SERVICES
  The program focuses on treadmill walking, which has been proven to help people with PAD walk farther. In our 12-week program, you’ll work with our exercise physiologist three times per week.

• SPECIALIZED PATIENT EDUCATION
  Your first visit is a one on one assessment with a vascular rehab specialist to discuss your specific needs. At each following session you will continue to work with your vascular team to ensure your treatment plan meets your needs.
  We also offer group sessions on a variety of issues of interest to people with PAD, including:
  • Diabetes management
  • Exercise safety
  • Medication management
  • Nutrition
  • Stress management

SENTARA’S 12-WEEK WALKING PROGRAM

We designed our vascular rehab program for people who have early-stage PAD with intermittent claudication (occasional leg pain). You’ll receive personalized instructions to help you build an exercise plan that you can continue on your own.

OUR 12-WEEK PROGRAM INCLUDES:
• Supervised exercise therapy with our exercise physiologist, three days a week
• Initial assessment that includes:
  • Functional assessment on a treadmill to see how well you can walk
  • Quality of life evaluation to understand how PAD affects your home life
  • Depression screening to assess your emotional health
  • Dietary review to determine a healthy eating plan
• Patient education through group sessions and one-on-one counseling
• Close collaboration with your vascular surgeon for your initial assessment and treatment plan approval
• Progress updates to keep your doctors informed, with comprehensive session reports in your electronic medical record

HOW TO GET STARTED WITH VASCULAR REHAB
To participate in our vascular rehab program, you’ll need to:
• Have your doctor’s referral
• Be able to walk short distances
  Medicare covers PAD supervised exercise therapy for people who have PAD with intermittent claudication. Many private health insurance plans also cover this therapy. Before you begin the program, our team can help you find out whether your health insurance plan will cover your care.

SentaraVascularSpecialists.com
# Vascular rehab roll out schedule

<table>
<thead>
<tr>
<th>Location</th>
<th>1st patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>Sentara CarePlex</td>
<td>Apr-18</td>
</tr>
<tr>
<td>SRMH</td>
<td>Jun-20</td>
</tr>
<tr>
<td>SVBGH</td>
<td>Jul-20</td>
</tr>
<tr>
<td>SAMC</td>
<td>2021 - no pts yet</td>
</tr>
<tr>
<td>SWRMC</td>
<td>Jan-21</td>
</tr>
<tr>
<td>SNGH</td>
<td>Feb-21</td>
</tr>
<tr>
<td>SOH</td>
<td>Mar-21</td>
</tr>
<tr>
<td>SMJH</td>
<td>Mar-22</td>
</tr>
<tr>
<td>SPAH</td>
<td>projected Q2-2022</td>
</tr>
<tr>
<td>SHRH</td>
<td>TBD (provider need)</td>
</tr>
<tr>
<td>SNVMC</td>
<td>TBD (provider need)</td>
</tr>
<tr>
<td>SLH</td>
<td>TBD (space issue)</td>
</tr>
</tbody>
</table>
## SENTARA VASCULAR REHAB EXPERIENCE

<table>
<thead>
<tr>
<th>Location</th>
<th># Orders</th>
<th># Pts Started</th>
<th># Pts Completed</th>
<th>Currently Active pts</th>
<th>% Started</th>
<th>% Finished</th>
</tr>
</thead>
<tbody>
<tr>
<td>SCH</td>
<td>139</td>
<td>69</td>
<td>32</td>
<td>15</td>
<td>50%</td>
<td>59%</td>
</tr>
<tr>
<td>SMJH</td>
<td>1</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SNGH</td>
<td>21</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>24%</td>
<td>50%</td>
</tr>
<tr>
<td>SOH</td>
<td>7</td>
<td>5</td>
<td>2</td>
<td>1</td>
<td>71%</td>
<td>50%</td>
</tr>
<tr>
<td>SRMH</td>
<td>38</td>
<td>17</td>
<td>5</td>
<td>1</td>
<td>45%</td>
<td>31%</td>
</tr>
<tr>
<td>SVBGH</td>
<td>63</td>
<td>36</td>
<td>24</td>
<td>6</td>
<td>57%</td>
<td>80%</td>
</tr>
<tr>
<td>SWRMC</td>
<td>7</td>
<td>4</td>
<td>1</td>
<td>2</td>
<td>57%</td>
<td>50%</td>
</tr>
<tr>
<td>SAMC</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SHRH</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>SLH</td>
<td>0</td>
<td>0</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td><strong>System Total</strong></td>
<td><strong>276</strong></td>
<td><strong>136</strong></td>
<td><strong>66</strong></td>
<td><strong>26</strong></td>
<td><strong>49%</strong></td>
<td><strong>60%</strong></td>
</tr>
<tr>
<td>Program Location</td>
<td>Date Started</td>
<td>Program started (Y/N)</td>
<td>Number of visits completed</td>
<td>Program compliant (Y/N)</td>
<td>Reason why pt didn’t complete program (Y/N)</td>
<td>Baseline goal achievement (Y/N)</td>
</tr>
<tr>
<td>------------------</td>
<td>--------------</td>
<td>----------------------</td>
<td>---------------------------</td>
<td>-------------------------</td>
<td>---------------------------------------------</td>
<td>---------------------------------</td>
</tr>
<tr>
<td>SCH</td>
<td>6/4/2019</td>
<td>Y</td>
<td>33</td>
<td>Y</td>
<td>4.8 lost</td>
<td>-2</td>
</tr>
<tr>
<td>SCH</td>
<td>5/15/2018</td>
<td>Y</td>
<td>35</td>
<td>Y</td>
<td>No Post EMNVT. PT reports increased endurance and ability to walk further.</td>
<td>No Post Outcome Info documented.</td>
</tr>
<tr>
<td>SC</td>
<td>10/19/2018</td>
<td>Y</td>
<td>35</td>
<td>Y</td>
<td>PT reports improved in the level of fatigue in her walks while she is walking.</td>
<td>No Post Outcome Info documented.</td>
</tr>
<tr>
<td>SC</td>
<td>11/15/2018</td>
<td>Y</td>
<td>35</td>
<td>Y</td>
<td>PT reports post program that her endurance has increased, improved confidence in health/exercise.</td>
<td>No Post Outcome Info documented.</td>
</tr>
<tr>
<td>SC</td>
<td>12/22/2018</td>
<td>Y</td>
<td>35</td>
<td>Y</td>
<td>PT reports that she plans to maintain fitness and continue walking routine at least 3 days/week.</td>
<td>No Post Outcome Info documented.</td>
</tr>
</tbody>
</table>

Notes:
- VascularDLX: Pre 131, Post 146
- VascularDLX: Pre 3, Post 75
- Pre program Smart: 870K, Post program Smart: 850K
- VascularDLX: Pre 149, Post 68
- VascularDLX: Pre 94, Post 182, Pre died 07/11/2021
- VascularDLX: Pre 420, Post 5
- VascularDLX: Pre 300, Post 83
- VascularDLX: Pre 108, Post 109
- VascularDLX: Pre 480, Post 215
- No reports feeling that his program has helped a lot
- VascularDLX: Pre 480, Post 188
- PT reports pain is less intense/freq
NEXT STEPS

• Working on Best Practices Alerts
• Implementing system roll out plan
• Measuring success
• Outreach
Follow Up...

Follow Through

Chris Sytsma
VH Director of Clinical Data
Winchester Medical Center
April 28, 2022
Why does it matter

Milestones

Birth

Terrible twos

Education

Young adulthood

Marriage

Children

Children leave home

Children return

Grandchildren

Grandchildren terrible twos (you are happy for the payback)

M2s Procedure

Death

Grandchildren soccer, gymnastics, basketball

Opportunity to stretch this line: Quality of life as well as Quantity of years
Follow up 9-21 Months

- PVI
  - Carotid Stent
  - Carotid Endarterectomy
  - 578 Annual Volume

- Infrainguinal Bypass
  - Suprainguinal Bypass
  - Vascular Medicine Registry
  - 231 Annual Volume +152 HAD Follow ups

- Endovascular Aortic Aneurysm
  - Thoracic And Complex Endovascular Aortic Repair
  - Lower Extremity Amputation
  - 149 Annual Volume
Like everyone, my team wears multiple hats. Support 20 databases Timing is everything
9-21 Month Follow ups

<table>
<thead>
<tr>
<th>Procedure Type</th>
<th>Completion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carotid Artery Stent</td>
<td>100% (31/31)</td>
</tr>
<tr>
<td>Carotid Endarterectomy</td>
<td>99% (101/102)</td>
</tr>
<tr>
<td>Peripheral Vascular Intervention</td>
<td>99% (387/389)</td>
</tr>
</tbody>
</table>

Follow Up

After entering most current month in current year, pulls follow ups for previous year. IF follow up scheduled, but did not yet occur, sticky on chart and follow up after that date. If no follow up scheduled, contact office to schedule follow up with testing.

When working on next month pts, goes back to follow up file and checks delinquent pts. May contact PCP when window close for follow up info. May contact pt. COVID issue this year

Follow Through

Every 6 months, generates the follow up list from M2S. Check EPIC and Care Everywhere for contacts. Check obituaries. Does not call pts but will follow up with office

Runs follow up report from M2S quarterly.
Verifies followup window correct. Continues with routine checks throughout 21 month window, contacts PCP, checks obituaries. Even if 21 month window closes, if finds encounter, enters into data base.

<table>
<thead>
<tr>
<th>Procedure Type</th>
<th>Completion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Hemodialysis Access</td>
<td>5% (7/152)</td>
</tr>
<tr>
<td>Infra-inguinal Bypass</td>
<td>5% (2/37)</td>
</tr>
<tr>
<td>Supra-inguinal Bypass</td>
<td>13% (1/8)</td>
</tr>
</tbody>
</table>

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Follow Ups Across Time

Team went into action

Accessible in spring dashboard reports
Key –
tool accessible to team to monitor progress

2019 Cases

<table>
<thead>
<tr>
<th>Procedure Type</th>
<th>Completion Rate</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carotid Artery Stent</td>
<td>100% (34/34)</td>
</tr>
<tr>
<td>Carotid Endarterectomy</td>
<td>100% (134/134)</td>
</tr>
<tr>
<td>Endo AAA Repair</td>
<td>88% (57/65)</td>
</tr>
<tr>
<td>Hemodialysis Access</td>
<td>99% (145/146)</td>
</tr>
<tr>
<td>Infra-inguinal Bypass</td>
<td>100% (31/31)</td>
</tr>
<tr>
<td>Lower Extremity Amputation</td>
<td>95% (73/77)</td>
</tr>
<tr>
<td>Peripheral Vascular Intervention</td>
<td>99% (372/377)</td>
</tr>
<tr>
<td>Supra-inguinal Bypass</td>
<td>100% (12/12)</td>
</tr>
<tr>
<td>Thoracic and Complex EVAR</td>
<td>75% (6/8)</td>
</tr>
<tr>
<td>Overall</td>
<td>98% (864/884)</td>
</tr>
</tbody>
</table>

TOP 25th percentile
Vascular Medicine Registry

• Currently enrolling only pts seen by Vascular Surgery
• Interacting with wound clinic to identify/follow pts
  – Limb salvage program
    • Podiatry
    • Vascular Surgeons and office
    • Wound clinic
    • Outcomes
    • 540-536-SAVE hotline
  – WIFI documentation
    • Wound
    • Ischemia
    • Foot infection

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Follow Ups for Vascular Medicine Registry  Kristen Ford

• Began collecting data July 1, 2022
• Elects to do follow ups every 30-60 days
  – Records procedures/tests
  – Gather beneficial information for clinicians
• Follow traditional LTFU for 9-21 months
Thank You

For the opportunity to showcase my most amazing team
Multi-Regional Elective EVAR
SVS Guideline Quality Project

To evaluate mitigating factors for the surgical treatment of small aortic aneurysms not meeting SVS guidelines

Stacy Giardina BSN,RN
Clinical Program Manager/VVSG Lead Data Manager
WVU Medicine
Multi-Regional Charter Core Group

• **Cleveland Clinic**
  - Dr. Chris Smolock - Vascular Surgery Quality Officer
  - Donna Fleming – Hospital Manager

• **Vascular Study Group of Greater New York (VSGGNY)**
  - Dr. Tassiopoulos - Regional lead physician — Stonybrook University Hospital
  - Dr. Issam Koleilat -RAC representative - Montefiore Medical Center in New York
  - Donna Albergo- Regional data manager— Stonybrook University Hospital

• **WVU Medicine**
  - Dr. Samantha Minc - Regional lead physician
  - Stacy Giardina- Regional data manager
Retrospective review of elective EVAR cases from January 1, 2017, through December 31, 2018

- Identify cases outside the SVS Guidelines for elective EVAR
  - < 5.5 cm Men
  - < 5.0 cm Women

- Review charts and add #hashtags in the comment section of pathway’s case

- SVS pulled the collective data according to the hashtags and report the new compliance to the guidelines with the mitigating factors taken into account

- Approximately 14 centers from VVSG participated with a total of 38 overall
<table>
<thead>
<tr>
<th>Hashtag</th>
<th>Definition</th>
<th>Total for patients with 1 answer</th>
<th>Multiple answers per pt</th>
<th>Total with multiple answers per patient</th>
</tr>
</thead>
<tbody>
<tr>
<td>#[ac_thromb]</td>
<td>Aneurysm w/ thrombosis</td>
<td>37</td>
<td>5</td>
<td>42</td>
</tr>
<tr>
<td>#[concom_aortoil_occ]</td>
<td>Concomitant treatment of atherosclerotic aortoiliac disease- occ</td>
<td>51</td>
<td>6</td>
<td>57</td>
</tr>
<tr>
<td>#[concom_aortoil_dissect]</td>
<td>Concomitant treatment of atherosclerotic aortoiliac disease- dissect</td>
<td>4</td>
<td>5</td>
<td>9</td>
</tr>
<tr>
<td>#[concom_iliac_aneur]</td>
<td>Concomitant/isolated iliac aneurysm</td>
<td>181</td>
<td>6</td>
<td>187</td>
</tr>
<tr>
<td>#distal_emb</td>
<td>Distal embolization</td>
<td>9</td>
<td>0</td>
<td>9</td>
</tr>
<tr>
<td>#chemo</td>
<td>Need for chemotherapy</td>
<td>2</td>
<td>2</td>
<td>4</td>
</tr>
<tr>
<td>#transplant</td>
<td>Need for transplantation</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td>#request_anxiety</td>
<td>Patient request/anxiety</td>
<td>32</td>
<td>4</td>
<td>36</td>
</tr>
<tr>
<td>#PAU</td>
<td>PAU (Penetrating Aortic Ulcer)</td>
<td>14</td>
<td>6</td>
<td>20</td>
</tr>
<tr>
<td>#rapid_expan</td>
<td>Rapid expansion (&gt;0.5-1.0 cm/year)</td>
<td>177</td>
<td>13</td>
<td>190</td>
</tr>
<tr>
<td>#Saccu</td>
<td>Saccular</td>
<td>66</td>
<td>11</td>
<td>77</td>
</tr>
<tr>
<td>#sympt_elect</td>
<td>Symptomatic but Scheduled as Elective</td>
<td>21</td>
<td>1</td>
<td>22</td>
</tr>
<tr>
<td>#EVAR_AAA[free-text]</td>
<td>Other reasons</td>
<td>0</td>
<td>0</td>
<td>0</td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>594</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>29</strong> pts with more than 1 #</td>
<td></td>
<td></td>
</tr>
<tr>
<td></td>
<td></td>
<td><strong>623</strong> Total pts enrolled</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Challenges/Lessons Learned

• While we emphasized in our training that only one Hashtag per patient was to be entered, some sites entered more than one Hashtag per patient making it difficult to count the total.

• We had initially offered a free text option to document “other reasons” outside the primary Hashtag list, M2s was not able to provide us with this data due to formatting issues with the # and Parenthesis. In the future, we would work further with FIVOS prior to data entry to ensure the format is approved and we don’t lose important data.

• Sites entered Hashtag data on those patients they identified with AAA diameter below threshold for repair: SVS Guideline (≥5.5cm for Men; ≥5 cm for Women). It would have also been helpful to know how many EVARs were performed at each site to have a better understanding of % size compliance.
The following hashtags were frequently entered; thus, we are recommending them as additional variables in future AAA revisions:

- Aneurysm w/ thrombosis
- Concomitant treatment of atherosclerotic aortoiliac disease
- Distal embolization
- PAU (Penetrating Aortic Ulcer)
- Rapid expansion (>0.5-1.0 cm/year)
- Saccular
- Symptomatic but Scheduled as Elective

- While Concomitant/isolated iliac aneurysm was also a common response, the variable to capture iliac aneurysms already exists in the EVAR module.

- Patient request/anxiety was also used as a response. However, we do not feel it is an appropriate medical exemption for compliance with SVS guidelines.
Future Regional Projects?

- Work within the region for future projects.

- Would need an agreement between centers to unblind data.

- Possibly look at long term follow-up on these cases.
Regional Improvement Projects

Dr. Albeir Mousa & Dr. Samantha Minc

• Brainstorming for new Regional Quality Improvement Projects
Updates for Spring 2022
VQI Regional Meeting
PATHWAYS Support

Claims Validation

The annual claims validation process is intended to ensure that all eligible cases have been captured in the registry and is a requirement of participation in the VQI.

The 2020 Claims Validation process was launched in September 2021.

- The deadline to finish was 12/31/21.
- PATHWAYS Support is here to help you. Please reach out if your center was selected to participate in the audit and would like assistance.

The selection and launch of 2021 Claims Validation is coming soon! Stay tuned!
What’s New?
Please check out recent enhancements in the PATHWAYS Support tab designed to improve your experience. Let us know what you think!

- **Documents** – Easy access to important abstraction documents.
  - **Code List** – Complete list of current VQI Eligible ICD-10 and CPT codes.
  - **Data Dictionary** – Ability to download data variables by procedure or all procedures.
  - **Inclusion/Exclusion Criteria** – Defines the procedures that are eligible for Inclusion/Exclusion in the registry.
  - **Paper Form** – Paper form for data abstraction.
- **Release Notes** - Access details on historical registry updates and other important announcements.
- **Training Schedule** – List of upcoming training opportunities and registration links for new staff and experienced abstractors.
PATHWAYS Support

Coming Soon...

The Support Team continues to work on implementing enhanced tools and training opportunities for new and existing PATHWAYS users to learn more about PATHWAYS functionality.

More details to come!
Technology Updates for VQI
Released in Q3 2021

• CAS Follow-up Outcomes Report
  • A new 'Follow-up Outcomes Report' for the CAS registry, developed by the SVS PSO, is now available in the PATHWAYS Reporting tab. The report will provide key follow up metrics for VQI sites with center data as well as regional and all VQI benchmarking and includes drill down capabilities to better understand center data at the procedure level.
Released in Q3 2021

- Infra Opioid Pilot
  - Infra-inguinal Bypass registry was updated to include new Opioid fields for all participating sites. The fields appear on their own tab at the end of the procedure and follow-up forms.
  - Procedure variables were added to the Procedure form in a tab called “Opioid”. The tab contains both Demographics and Post-Op variables.
  - Follow-up variables are in the 30-day follow-up and long-term follow-up forms for Infra-inguinal Bypass procedures.
  - Discharge and follow-up opioid detail columns display dynamically depending on type(s) of opioids selected.
Released in Q3 2021

• Infra Opioid Pilot, cont.
  • Follow-up medications also include reference columns so the user can see the number of pills/patches and refills originally prescribed at discharge. These reference columns automatically populate based on data entered in the procedure form, or display N/A if there is no discharge information available.
  • For discharge and follow-up opioids, the Morphine Equivalent (MME) column is automatically calculated using medication-specific factors. MME is calculated as Dose x Frequency x Conversion Factor. We will not calculate the MME value if the medication type is Other, and/or if the frequency is PRN. Please note that for Methadone the conversion factor increases at higher doses and for Fentanyl it is dosed in mcg/hr instead of mg/day.
Released in Q3 2021

• TEVAR revisions - New dependency for LTFU Entry Flow and Dissection Date and Type
  • TEVAR LTFU Entry Flow:
    • A change was made to the dependency for Entry Flow on the TEVAR follow-up form. The field ‘Entry Flow’ no longer displays when imaging is equal to ‘None’.
  • TEVAR Dissection Date and Type:
    • There was formerly no validation between Dissection Onset Date and Procedure Date, or between Dissection Onset Date and Dissection Type. As such, it was possible to enter a Dissection Date that is after Procedure Date, as well as record a Dissection Date that does not match the selected type (Acute or Chronic). Validation was added so if this mismatch occurs, users must correct either the ‘Dissection Date’ or the ‘Dissection Type’ before being allowed to submit the procedure form.
Released in Q3 2021

- CEA revisions
  - New fields associated with imaging were added.
  - New dependencies were added to the Modified Rankin Score fields so they will display on the form only when the patient had a stroke.
  - The layout of the Pre-op Imaging section was changed slightly in order to harmonize the format with other registries where Right and Left sides are displayed separately in two columns.
  - The Stenosis fields being retired were mapped to new fields.
Released in Q3 2021

- CAS revisions
  - New event fields and fields associated with imaging were added in order to collect more granular information.
  - Modified fields - Lesion Stenosis L1 and L2 have updated min/max ranges from 0-99 to 0-100.
  - The Other Imaging Stenosis fields were retired and replaced with fields that are specific to each imaging type.
Released in Q3 2021

• VMC revisions
  • New fields were added to the VMC registry to capture Peak Systolic Velocity and End Diastolic Velocity Stenosis Events in the Procedure and Long-Term Follow-up.
  • The response options for the Carotid Stenosis Right and Carotid Stenosis Left in both the Procedure and the Follow-up forms were revised.
  • The Carotid PSV Right and Carotid PSV Left data collection fields were retired. The layout of the Carotid Disease section of the Procedure Form will be changed slightly in order to harmonize the format with other registries where Right and Left sides are displayed separately in two columns.
Released in Q3 2021

- IVC Filter revisions
  - The registry consolidated the “Other” IVC filter device options into a single option for both retrievable and permanent devices. All of the “Other” temporary and retrievable devices (select options 20 through 39 in the IVC_FILTER_TYPE field) were retired and a new 99 = Other field was created which will open the existing Other field (IVC_FILTER_TYPE_OTHER).
Released in Q3 2021

- Add comment to completed record
  - Users are now able to append additional comments without making changes to original data in the form. The Comments field now includes a new button labelled “Update Comments” that initially appears as grayed out. If users change or add any information in the Comments field, the button becomes active and allows the user to save the changes without reverting the form.
Released in Q3 2021

- Auto-save before timeout
  - Formerly, if users were logged out of PATHWAYS due to inactivity, any data entry changes they have made were lost. This feature will automatically save changes to records and will flag the record accordingly in the record information table.
Released in Q4 2021

- EVAR and TEVAR revisions: Convert "Aptus HeliFX" device name to "HeliFX"
  - The manufacturer name was removed from the response options for the “Anchors Type” field. Therefore the “Aptus Heli-FX” device name was converted to “Heli-FX”. This change affected both the procedure and long-term follow-up (LTFU) forms.
EVAR Follow-up Outcomes Report

- The existing EVAR Follow-up Outcomes report was moved from Insights to the Reporting tab in PATHWAYS. As a result, the Report Privileges in the User Information page under the Admin tab replaced the current Insights section.
- The report was updated to include Kaplan Meier rates of occurrence for Stroke, Myocardial Infarction, Mortality, and Re-intervention at 1 year.
- At the time of release, all users who currently had access to the Insights version of the report will automatically have the permission enabled for the updated version.

Released in Q4 2021
Released in Q4 2021

- Custom Lists
  - A new “Custom Lists” button was added to the Admin tab in PATHWAYS. The existing “Assistant Setup” and “Hemodialysis Access Late Follow-up Contact” icons under the Admin tab were transitioned to the “Custom Lists” functionality. Custom Lists will allow users to create Assistants, Trainees and Hemodialysis Access late Follow-Up Contacts.
Released in Q4 2021

- Infra Opioid Updates
  - Antidepressant option was removed from the Non-Opioid Pain Med Use variables.
  - The Number of Pills Prescribed fields was modified to accept 3 digits instead of 2.
  - The “Number of Refills Since Procedure” labels was changed to “Number of New Prescriptions Since Procedure.”
  - The Dose, frequency, number of pills/patches, and number of new prescriptions fields will be optional in the 30-day follow-up form.
  - The Dose, frequency, number of pills/patches, and number of new prescriptions fields will remain required on the Long-Term Follow-up (LTFU) but will not be mandatory for follow-up credit.
  - The LTFU Completion Rate will be recalculated. LTFU records submitted before the release that meet the updated mandatory field requirements will be flagged as valid and included in the calculation for successful follow-up.
Released in Q4 2021

• VQI Across Registry Revisions - Gender to Sex
  • The label for the “Gender” data collection field will be changed across all VQI registries to “Birth Sex” and a new response option, “Other”, will be added. The help text will be updated to reflect this change:
Released in Q4 2021

- New COVID Vaccination fields
  - Four new data collection fields will be added under the Procedure tab in PATHWAYS to collect information about COVID-19 vaccines
Released in Q4 2021

- New Trainee and Other Assistant fields
  - PATHWAYS Admin section of PATHWAYS was updated to introduce new Trainee fields to the VQI registries. This release allows trainee and other assistant information and retires the Assistant field previously used to collect similar information.
Released in Q4 2021

- **EVAR/TEVAR revisions**
  - **EVAR**
    - The min/max range for Largest Sheath Size Right and Largest Sheath Size Left will be changed from 7-24 to 6-24.
    - The help text will be updated to reflect the change in the min/max range, and the existing EVAR Devices graph will be removed.
  - **TEVAR**
    - The min/max range for Largest Sheath Size Right and Largest Sheath Size Left will be changed from 16-30 to 6-30.
    - The help text will be updated to reflect the change in the min/max range, and the existing TEVAR Devices graph will be removed.
Released in Q4 2021

- CEA Follow-up Outcomes Report
  - A new 'Follow-up Outcomes Report' for the CEA registry, developed by the SVS PSO, is now available in the PATHWAYS Reporting tab. The report will provide key follow up metrics for VQI sites with center data as well as regional and all VQI benchmarking and includes drill down capabilities to better understand center data at the procedure level.
Registry Projects
SVS Post-Market Surveillance Projects

• These projects are conducted within the SVS PSO and only non-identifiable data (removal of patient, center and physician information) will be provided to Medtronic/BARD/Cook/Gore or the FDA. Only standard of care practice is being evaluated. For such PSO activities, patient informed consent and Institutional Review Board review are not required.

• Sites must follow their institutional guidelines.
TEVAR Dissection Surveillance Project

- The SVS PSO is excited to announce the continuation of the TEVAR Dissection Surveillance Project to evaluate the Cook Zenith Dissection Endovascular System. 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 was done through VQI for the W. L. Gore and Medtronic devices after their approval.
- Patients will have 30 day, and annual visits for 5 years.
- Total reimbursement of $4,000 per patient for a patient followed annually for 5 years
TEVAR Dissection Surveillance Project

• 73 of the 180 required patients enrolled (39 potential cases in process)
• Retrospective enrollment allowed- All eligible cases from December 31, 2018 (protocol FDA approval date)
• 34 30-Day visits completed, 18 1-year follow-up visits completed and 1 2-year follow-up visit completed
• All 40 sites enrolled (5 are in contracting)
• This project is conducted within the SVS PSO and only non-identifiable data (removal of patient, center and physician information) will be provided to Cook or the FDA. Only standard of care practice is being evaluated. For such PSO activities, patient informed consent and Institutional Review Board review are not required.
Initiated in October 2014, the TEVAR Dissection Surveillance Project Arm evaluates the W.L. Gore and Medtronic devices for treatment of Type B thoracic dissections.

Meeting FDA requirement
- 194 chronic and 200 acute patients with device technical success

Currently in 5-year follow-up phase
PATHWAYS Support
Fall 2022

In person?
Hybrid?
Remote?

Thank you
Meeting Attendance Credit

**REMEMBER TO PSO:**

- **P**UT your FULL NAME in RingCentral to get credit for attendance and CME/CE credit (no exceptions will be made)
- **S**END an email to ljohnson@svspso.org with names of group members that are sharing 1 device
- **O**FFICIALLY apply for CME/CE credit by clicking this link: https://dmu.co1.qualtrics.com/jfe/form/SV_8Gkg2CFagVTcbFc

You only have **7 days** to complete forms for CME/CE Credit.

**NO EMAIL WILL BE SENT AS A REMINDER OR WITH THE CME/CE LINK**