Canadian Vascular Quality Initiative (CVQI)

September 12th, 2019
8:00 – 11:30 AM
Delta Okanagan Resort
1310 Water St, Kelowna, BC
PLEASE SIGN THE ATTENDANCE SHEET
I. Welcome and Introduction
   Graham Roche-Nagle, MD

II. National VQI Update
    Cheryl Jackson, RN, SVS PSO

III. AQC Update
     Mary Macdonald, MD

IV. RAC Update
    Graham Roche-Nagle, MD

V. GC Committee Update
   Graham Roche-Nagle, MD

VI. Regional Data Review
    Graham Roche-Nagle, MD

VII. Meeting Evaluation
     Graham Roche-Nagle, MD
Welcome and Introductions

CISSSO Outaouais
Covenant Health-Grey Nuns Hospital
Thunder Bay Regional Health Science Center
Toronto General Hospital
CHUM
Nova Scotia Health Authority
Sunnybrook Health Sciences Centre
## Potential Sites

<table>
<thead>
<tr>
<th>Account</th>
<th>City/State</th>
<th>Stage</th>
<th>Physician Lead</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peter Lougheed Centre</td>
<td>Calgary, Alberta, CAN</td>
<td>Proposal</td>
<td>Dr. Paul Petrasek</td>
</tr>
<tr>
<td>CISSS</td>
<td>Quebec, CAN</td>
<td>Contracting</td>
<td>Dr. Benoit Cartier</td>
</tr>
</tbody>
</table>
National VQI Update:
Cheryl Jackson, RN, SVS PSO
594 VQI Centers
593 centers in North America
1 center in Singapore
18 Regional Quality Groups
### Total Procedures Captured (as of 8/1/2019)

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Count</th>
</tr>
</thead>
<tbody>
<tr>
<td>Peripheral Vascular Intervention</td>
<td>196,556</td>
</tr>
<tr>
<td>Carotid Endarterectomy</td>
<td>125,100</td>
</tr>
<tr>
<td>Infra-Inguinal Bypass</td>
<td>54,614</td>
</tr>
<tr>
<td>Endovascular AAA Repair</td>
<td>50,488</td>
</tr>
<tr>
<td>Hemodialysis Access</td>
<td>49,645</td>
</tr>
<tr>
<td>Carotid Artery Stent</td>
<td>32,548</td>
</tr>
<tr>
<td>Varicose Vein</td>
<td>32,012</td>
</tr>
<tr>
<td>Supra-Inguinal Bypass</td>
<td>18,169</td>
</tr>
<tr>
<td>Thoracic and Complex EVAR</td>
<td>15,333</td>
</tr>
<tr>
<td>Lower Extremity Amputations</td>
<td>15,062</td>
</tr>
<tr>
<td>IVC Filter</td>
<td>12,732</td>
</tr>
<tr>
<td>Open AAA Repair</td>
<td>12,597</td>
</tr>
</tbody>
</table>

Total: 614,856

### VQI Total Procedure Volume

![Graph showing total procedure volume from January 2014 to July 2019](image)

Total Procedure Volume tab reflects net procedures added to the registry for the month.
SVS PSO Staffing Update:

- Kristopher Huffman has been hired as the new Director of Analytics
  - Kristopher comes to us from ACS NSQIP
  - Kristopher will start on September 3rd
  - Dan Neal will continue on as a part-time employee of the PSO
- Actively Recruiting for Clinical Operations Associate
  - Position will report to Carrie Bosela
  - Position will assist with data audits, responding to clinical questions and updating and maintaining the registries
  - Position will be the lead interface with regional data managers
  - Position will attend regional and national meetings
SVS PSO Staffing Update:

- SVS PSO will be hiring an Associate Medical Director
  - A RFA will be issued by the end of August and the position will be filled by March 2020
  - Position will report to the PSO’s Medical Director, Dr. Jens Eldrup-Jorgensen
  - The initial focus will be to assist the SVS PSO Medical Director and SVS PSO staff, with guidance and oversight its clinical operations.
  - There will be a specific emphasis placed on attaining a deep understanding of the construct of the variables in each SVS VQI registry and then assisting with the development and maintenance of the registries and associated reporting and analytics.
VQI@VAM Highlights:

- **Expanded Concurrent Abstraction Sessions**
  - Consider adding Data Managers as presenters
  - Add more structured Q&A
  - Need more detailed Op Notes

- **Continued Growth of Poster/Networking Session**
  - People commented on not only the increased number of posters, but the diversity and quality of topics
  - More time allotted for QI presentations
  - Will hold QI presentations to given timeframes, going forward

- **New Topics/Presentations Received High Praise**
  - Opioid Crisis/ERAS Expert Panel
  - Limb Amputation/Preservation
  - Registry Operations Support
- Attendance 161
- 60/40 split – Data Manager/Physician
- 3.24/4.00 Meeting Evaluation Rating
- Who attended?
- Feedback? How do we improve?
<table>
<thead>
<tr>
<th>Title</th>
<th>Authors</th>
<th>Institution</th>
</tr>
</thead>
<tbody>
<tr>
<td>Preoperative Anemia has Gender Based Differences in Immediate Postoperative Mortality</td>
<td>Raju, Sneha and Eisenberg, Naomi</td>
<td>Toronto General Hospital</td>
</tr>
<tr>
<td>Leveraging Vascular Quality Initiative Data to Improve Hospital Length of Stay for EVAR Patients</td>
<td>Eisenberg, Naomi</td>
<td>Toronto General Hospital</td>
</tr>
<tr>
<td>Endovascular Repair of Abdominal Aortic Aneurysm (EVAR) in Octogenarians: Report on Clinical Outcomes and Complications</td>
<td>Raju, Sneha and Eisenberg, Naomi</td>
<td>Toronto General Hospital</td>
</tr>
</tbody>
</table>
Preoperative Anemia has Gender Based Differences in Immediate Postoperative Mortality in Vascular Surgical Patients

Sneha Raju MD, Naomi Eisenberg PT MEd, Janice Montbriand PhD, Graham Roche-Nagle MD

**Objectives**

1. Relationship between pre-operative hemoglobin levels and post-operative complications, cardiac events, and short-term mortality

2. Determine hemoglobin thresholds to prevent short-term mortality (30-day).

**Results**

**A. Post-OP Complications**

<table>
<thead>
<tr>
<th>Hemoglobin</th>
<th>COPOD</th>
</tr>
</thead>
<tbody>
<tr>
<td>Male</td>
<td>Female</td>
</tr>
<tr>
<td>B = .015, p = .008</td>
<td>B = .282, p &lt; .005</td>
</tr>
</tbody>
</table>

Pre-operative hemoglobin levels was a significant predictor of short term mortality, adverse cardiac events and post-operative complications.

Hemoglobin Thresholds (mortality):


**B. Cardiac Complications**

- Pre-op HB (p < 0.001)
- COPD (p < 0.05)

**C. Mortality (Combined)**

30-day mortality was 5% (n=79). 51M, 28F

Univariate predictors:
- Hemoglobin (B = .042, p < 0.0001, OR = .96)
- COPD (B = 8.0, p = 0.009)
- Age (MIVU = 425, p < .005)

Multivariate predictors: Hemoglobin(p < 0.001)
Background
- Health care spending represents ~ 11.5% of Canada’s GDP ($6604/person or $2426/year CAD)
- Reducing LOS has been cited as a quality metric to reduce cost and iatrogenic morbidity

The Problem:
LOS identified as being an above expected by VQI (LOS = 3.83)

PDSA Cycle (Plan-Do-Study-Act)

1. The Plan: Review 2 years’ worth of data to identify what was happening and analyze where we impact.
2. Do: Implement changes and review
3. Study: What happened after we made the changes? Did the intervention make a difference?
4. Act: Revise the intervention and revisit


Table 1
- 59% of charts in the earlier cohort did not have a documented reason for eLOS

Targeted Interventions:
1. Surgical:
   a. Change to percutaneous access (consistent with technological advances)
   b. Eliminate use of urinary catheters,
   c. Non-opioid pain control
   d. Early mobilization
2. Preoperative patient counselling of patient, family, nurses and trainees to manage expectations.

Results: Table 2

Table 3: Logistic Regression results predicting LOS > 2 days
Few statistical differences were noted between groups, hypothesizing that patient expectations are a driver of eLOS.

Conclusion:
Simple interventions resulted in decreased length of stay, cost savings, and no harm to patients.
EVAR in Octogenarians: A Report on Clinical Outcomes

Sreha Raju MD, Naomi Eisenberg MD, PT, Janice Montibane MD, Graham Roche-Nagle MD, MBA, FRCSI
Division of Vascular Surgery, Peter Munk Cardiac Center, University Health Network, Toronto, Ontario, Canada
University of Toronto, Faculty of Medicine

Introduction

- Life expectancy is increasing. Octogenarians are the fastest growing demographic.
- Prevalence of AAA likely to increase in this cohort. EUROSTAR data shows increased AAA rate between 1996-2006.
- Treatment is associated with increased life expectancy.
- Little data exploring long-term clinical outcomes, follow-up and predictions.

Methods

- Retrospective Chart Review of consecutive patients ≥ 80 years undergoing infrarenal EVAR between 2010-2017 at the Toronto General Hospital.
- TEVAR and FVVAR patients were excluded.

Data collected:
- Demographics
- Risk factors and co-morbidities
- Post-operative complications
- Mortality
- Follow-up

Multivariate hierarchical logistic regression using bootstrapping (1,000 samples).

Results

Baseline Characteristics

<table>
<thead>
<tr>
<th>Variable</th>
<th>Value</th>
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</thead>
<tbody>
<tr>
<td>Age, years</td>
<td>85 (IQR 83-87)</td>
</tr>
<tr>
<td>BMI, kg/m²</td>
<td>28.5 (IQR 24.5-32.5)</td>
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<tr>
<td>Male, %</td>
<td>78</td>
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<tr>
<td>Marital Status</td>
<td>Married</td>
</tr>
<tr>
<td>Diabetes, %</td>
<td>55</td>
</tr>
<tr>
<td>Hypertension, %</td>
<td>53</td>
</tr>
<tr>
<td>Renal Failure, %</td>
<td>10</td>
</tr>
<tr>
<td>History of Smoker, %</td>
<td>30</td>
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</tbody>
</table>

Post-Operative Complications

- No Complications: 121, Complications: 20, 9% mortality.

Predictors of Complications

- Multivariate predictor of all complications = DIABETES (β = 1.48), OR = 4.27, 95% CI = 1.69-10.74, p = 0.007.

Mortality

- Overall: 13 (7.5% mortality).
- Cause of Death: Aorta (5), Other (8).

Discussion and Conclusions

- EVAR in octogenarians with acceptable short and long-term outcomes.
- Age has been shown to be a risk factor for AAA.
- AAA risk increases with age.
- Major complications: 30% at 30 days, 95% at 1 year.
- Complications associated with overall mortality.

References

- National Inpatient Sample Database (2010-2017)
- Canadian registry data (2010-2017)
- TORONTO General Hospital data (2010-2017)
- Systematic review of the literature.
Quality Improvement Activities
Quality Improvement Webinars:

- **2019 Quarterly Webinars**
  - **February 2019**
    - “Starting a QI project”
  - **May 2019**
    - “Code Rupture: Establishing A Protocol for the Patient With a Ruptured Aneurysm”
  - **September 2019**
    - Educational – Methodology, QI tools
    - Case studies from participants
  - **November 2019**
    - Wrapping up a QI project, 2020 Participation Award Information
Recap of 2018 QI Projects

Putting Data into Action
See what your colleagues are doing with QI

- Twenty five posters were presented at the 2019 VQI@VAM
- Eight charters were featured in the poster presentations
- Three charters became podium presenters
- Ten poster presenters were podium presenters
- Four posters were based on the national VQI initiatives: D/C Medications and EVAR Imaging LTFU
Quality Improvement Details: Charter Information

<table>
<thead>
<tr>
<th>1. Activity</th>
<th>Documentation</th>
<th>Score</th>
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<tbody>
<tr>
<td>1. QI Project Initiation</td>
<td>Attestation to include:</td>
<td>2 points</td>
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<tr>
<td></td>
<td>• QI Project Title</td>
<td>Can be submitted at</td>
</tr>
<tr>
<td></td>
<td>• Problem Statement</td>
<td>anytime</td>
</tr>
<tr>
<td></td>
<td>• Project Leader</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Clinical Sponsor</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Expected start date</td>
<td></td>
</tr>
<tr>
<td></td>
<td>Form can be accessed at</td>
<td></td>
</tr>
<tr>
<td></td>
<td>• Project charters should be emailed to <a href="mailto:QI@SVSPSO.ORG">QI@SVSPSO.ORG</a> or <a href="mailto:cjackson@svsps.org">cjackson@svsps.org</a></td>
<td></td>
</tr>
</tbody>
</table>
Charter participants become part of focused group calls
- Interactive discussion sharing barriers and successes
- Sharing of charters
- Networking
- Checking in – where are you in the process
- Celebrating success

One on one calls, if requested
Newsletters

- The VQI News
  - Distributed every other month
  - Provides updates on regulatory issues, technical updates, and crossover news from the SVS and SVN

- VQI Quality Improvement Newsletter
  - Distributed every other month
  - Focusing on QI processes, tools, and definitions
Quality Improvement Details for 2019 Participation Awards:

- 6-point maximum credit for QI even though additional points can be acquired
- Each VQI center submits one QI project per center for the Participation Award
- Reminder: Eligibility requirement - Participation in VQI for at least 12 months
- Final scoring completed: January 31, 2020
- Star Ratings communicated in March 2020
Participation Awards: 2019

Scoring

- LTFU (40%)
- Regional Meeting attendance (30%)
- QI Project (20%)
- Registry subscriptions (10%)

Participation Committee is in the process of reviewing criteria for 2020 awards
Participation Awards:

3 Star recipients received certificates at the Spring Regional and National Meeting
Participation Award Results

Covenant Health-Grey Nuns Hospital

Thunder Bay Regional Health Science Center
Toronto General Hospital

Congratulations to all Star Awards
3 Star Award Recipients
For general inquiries about the Participation Awards, please contact Cheryl Jackson at CJACKSON@SVSPSO.ORG or Jim Wadzinski at JWADZINSKI@SVSPSO.ORG.

Submit Project Charters and supporting documentation for presentations and posters to Qi@SVSPSO.ORG or c.jackson@svspso.org.

Visit the VQI Members Only Website for webinars and presentations on VQI Quality Improvement Projects. www.vqi.org
2019 Reports:

- **Quarter 1:**
  - Spring Regional Reports,
  - QI Update: EVAR LTFU Imaging Update/Risk Calculator
  - Performance Awards

- **Quarter 2:**
  - QI Initiative Updates – DC meds and EVAR LTFU imaging
  - Center and System Dashboards

- **Quarter 3:**
  - Fall Regional Reports
  - QI Initiative Updates – DC meds and EVAR LTFU imaging
  - Center and System Dashboards

- **Quarter 4:**
  - QI Initiative Updates – DC meds and EVAR LTFU imaging
Registry Updates:

- **Hemodialysis Access:** In development and will be released in Q3 2019
- **Vascular Medicine Registry:** Specifications finalized, to be released in Q4 2019
- **Varicose Vein:** Specifications finalized, to be released in Q4 2019
- **Venous Stent Registry:** Specifications finalized, to be released in Q4 2019
M2S Updates

Fall Regional Group Meetings
Technology Updates
• Implement GUDID integration for PVI balloons and atherectomy (on PVI comprehensive form)
  — Released on 5/22/2019
Technology Released in Q2 2019

- Across-registry change on Patient Details page
  - Released on **6/5/2019**
  - Allow Follow-up links to display for all procedures even when an exclusion rule is met
    - Exclusion rules include:
      - Carotid Artery Stent registry: If all arteries treated are Technical Failure then the procedure is excluded.
      - Endo AAA Repair: If converted to Open, then a follow-up EVAR form is not required.
      - PVI registry: If all arteries treated are Technical Failure or Unable to Treat then the procedure is excluded.
      - Thoracic and Complex EVAR: If the 'Aortic Device Implanted = No' then treat the procedure as Technical Failure, or if converted to Open do not require a follow-up on the TEVAR form.
      - Universal: If death is recorded on an index procedure, no follow-up is required for that procedure. This procedure will be excluded.
Technology Released in Q3 2019

- PVI Revision - update PVI Closure Device Type Right/Left
  - Released on 6/26/2019
Across-registry revision - retire Healthcare Insurance Claims Number (HICN) variable

- Released on **7/24/2019**
- HICN field was retired on:
  - Carotid Endarterectomy
  - Hemodialysis Access
  - IVC Filter
  - Infra-inguinal Bypass
  - Supra-inguinal Bypass
  - Lower Extremity Amputation
  - Open AAA Repair
  - TEVAR
Other Development Projects to be released in 2019

- Hemodialysis Access registry revision
- TEVAR registry revision for Cook Dissection PAS project
- New Venous Stent registry
- Varicose Vein registry major revision
- New Vascular Medicine registry
- INFRA & SUPRA revisions - groin incision variables
Registry 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 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
2019 Projects

2018 Claims Validation

• The support team will be notifying sites selected to participate in the 2018 claims validation process in Q3.

Upcoming Analytics Webinars

• BASIC ANALYTICS - Wednesday, September 4, 2019 at 2 p.m. EST
• ADVANCED ANALYTICS - Wednesday, October 2, 2019 at 2 p.m. EST

• If you wish to register, and have not received a registration link, please contact pathwayssupport@m2s.com.

• Both webinars will be recorded and posted to the Resources in PATHWAYS along with the associated Q&A.

Support

• The support team will be introducing brief training recordings focused on specific PATHWAYS functions.
Research Advisory Council
Graham Roche-Nagle, MD
Change in RAC Policies!

- Policy on RAC Requests Related to Industry Studies
- Policy on Device Identification for approved RAC Requests
- Conflict of Interest Policies Revised based on these new Policies
- All posted on the VQI Web Site
National Research Process

Proposal Submissions

October 2019

Call for Proposals: August 13, 2019
Due Date: September 16, 2019
Meeting: October 7, 2019
Notification Sent: October 8, 2019

December 2019

Call for Proposals: October 8, 2019
Due Date: November 18, 2019
Meeting: December 9, 2019
Notification Sent: December 10, 2019
RAC Update - Reminder

- No Restriction of data release based on similar projects; collaboration is encouraged
- Only 1 refresh of data within 24 months of initial approval
- Industry related projects need to collaborate with the steering committee/s (i.e. TCAR)
  - Review policy and industry charters on the web
- Device Identification Policy: review on the web before submitting proposal
Check Approved Project List

https://www.vqi.org/data-analysis/rac-approved-project-search/

To submit a proposal to be considered for the National RAC, please follow the link below:
http://abstracts123.com/svs1/meetinglogin
2 upcoming submissions from UHN
1. Hemoglobin and its effect on MACE
2. Comparison of Canada v US aneurysm size

ALL ARE WELCOME TO JOIN THE STUDY TEAM!!
Brainstorming other ideas
Arterial Quality Council: Mary Macdonald, MD
Opioid Workgroup is formed and charged with putting forth recommendations on how the VQI can be used to track, monitor and benchmark opioid utilization.

Continued refinement to Global Unique Device Identification Database (GUDID) integration in PVI, with planned expansion to other registries.

Initiating Future Registry Updates
- Harmonizing Demographics and Meds across all registries
- Updating Infra/Supra Registries
- Updating OAAA

Provided Education and Clarification on recording “Other Devices” and IDEs
Governing Council:
Graham Roche-Nagle, MD
Vote on new Executive Committee Member
   – Dr. Yazan Duwayri, Emory University

Presentation on Potential New Cost Project – Expanding upon the EVAR Cost Pilot Project

Need for New RAC Policies
   – Revised Data Use Agreements
   – Non-VQI members cannot have access to VQI BDS
   – How to handle center id in Regional Data Sets
Regional Reports:

Graham Roche-Nagle, MD

Notes:
1) In all reports, regional data are not shown for regions with <3 centers participating in the applicable registry.
2) In “by Center” bar charts, unless noted, data are not shown for centers with <10 cases.
3) In all graphics, “*” indicates a p-value<.05.
4) This report includes all data that had been entered into the VQI as of June 30, 2018.
Dashboard

The table below summarizes your center’s results as presented in each of the subsequent reports and provides regional and national benchmarks for comparison. In the “Your Center” column, percentages represent the rate of cases with the noted outcome. Numbers in parentheses are the number of cases with the outcome/the total number of cases meeting the exclusion criteria (see the full report for details). In the “Region” and “VQI” columns, the numbers represent the 25th, 50th (median) and 75th percentiles for centers in your region and across all centers in the VQI.

Your center’s results are highlighted in green if your center is at or above the top 25th percentile nationally, in yellow if your center is among the middle 50% of centers, and in red if at or below the bottom 25th percentile.
| Registry                      | Outcome                                      | Your Center % (n/N) | Your Region [25p|50p|75p] | VQI Overall [25p|50p|75p] |
|-------------------------------|----------------------------------------------|---------------------|----------------------------|--------------------------|
| All                           | Total Procedure Volume                       | [174|338|491]         | [31|111|273]                  |                          |
| Multiple (July 2016-June 2017)| Long-Term Follow-Up                         | [45%|69%|89%]          | [38%|70%|86%]                  |                          |
| Multiple                      | Discharge Medications                        | [82%|84%|84%]          | [76%|84%|92%]                  |                          |
| AVACCESS                      | Primary AVF vs. Graft                        | NA (<3 centers)     | [78%|86%|94%]                  |                          |
| CAS                           | In-Hospital Stroke/Death                     | NA (<3 centers)     | [0%|0%|0%]                    |                          |
| CEA                           | In-Hospital Stroke/Death                     | NA (<3 centers)     | [0%|0%|0%]                    |                          |
| CEA                           | LOS>1 Day                                    | NA (<3 centers)     | [31%|19%|12%]                  |                          |
| EVAR                          | LOS>2 Days                                   | [16%|12%|9%]           | [18%|10%|0%]                   |                          |
| EVAR (July 2016-June 2017)    | Sac Diameter Reported at LTFU               | [47%|50%|75%]          | [33%|62%|76%]                  |                          |
| INFRA                         | Major Complications                          | [9%|6%|6%]            | [6%|0%|0%]                    |                          |
| IVCF (January-December 2018)  | Filter Retrieval                             | NA (<3 centers)     | [0%|8%|39%]                   |                          |
| LEAMP                         | Postop Complications                         | NA (<3 centers)     | [15%|11%|3%]                   |                          |
| OAAA                          | In-Hospital Mortality                        | NA (<3 centers)     | [0%|0%|0%]                    |                          |
| PVI                           | ABI/Toe Pressure Reported                    | [61%|72%|80%]          | [68%|83%|93%]                  |                          |
| SUPRA                         | Postop Complications                         | [11%|8%|4%]           | [0%|0%|0%]                    |                          |
| TEVAR (July 2016-June 2017)   | Sac Diameter Reported at LTFU               | NA (<3 centers)     | [20%|50%|71%]                  |                          |
| EVAR                          | Sac Size Guideline                           | [89%|95%|100%]         | [63%|74%|83%]                  |                          |
## Total Procedure Volume

Procedures performed between June 1, 2018 and May 31, 2019

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

Data for this report include all cases with surgery date between June 1, 2018 and May 31, 2019, that had been entered into the VQI as of June 30, 2019.

<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>AVACCESS</td>
<td>NA (&lt;3 centers)</td>
<td>116</td>
<td>6748</td>
</tr>
<tr>
<td>CAS</td>
<td>NA (&lt;3 centers)</td>
<td></td>
<td>7817</td>
</tr>
<tr>
<td>CEA</td>
<td></td>
<td>165</td>
<td>17482</td>
</tr>
<tr>
<td>EVAR</td>
<td></td>
<td></td>
<td>6674</td>
</tr>
<tr>
<td>INFRA</td>
<td></td>
<td>158</td>
<td>6308</td>
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<tr>
<td>IVCF</td>
<td>NA (&lt;3 centers)</td>
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<td>LEAMP</td>
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<td>PVI</td>
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<tr>
<td>SUPRA</td>
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<td>2047</td>
</tr>
<tr>
<td>TEVAR</td>
<td>NA (&lt;3 centers)</td>
<td></td>
<td>2460</td>
</tr>
<tr>
<td>Varicose Veins</td>
<td>NA (&lt;3 centers)</td>
<td></td>
<td>7372</td>
</tr>
<tr>
<td>Overall (June 2018-May 2019)</td>
<td></td>
<td>1307</td>
<td>95486</td>
</tr>
<tr>
<td>Overall (June 2017-May 2018)</td>
<td></td>
<td>1606</td>
<td>101908</td>
</tr>
</tbody>
</table>
Total Procedure Volume, All Years

Includes all procedures with surgery date through May 31, 2019.

<table>
<thead>
<tr>
<th>Your Center (N)</th>
<th>Your Region (N)</th>
<th>VQI Overall (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVACCESS</td>
<td>NA (&lt;3 centers)</td>
<td>46748</td>
</tr>
<tr>
<td>CAS</td>
<td>NA (&lt;3 centers)</td>
<td>30284</td>
</tr>
<tr>
<td>CEA</td>
<td>588</td>
<td>121871</td>
</tr>
<tr>
<td>EVAR</td>
<td>974</td>
<td>47972</td>
</tr>
<tr>
<td>INFRA</td>
<td>836</td>
<td>52373</td>
</tr>
<tr>
<td>IVCF</td>
<td>NA (&lt;3 centers)</td>
<td>12067</td>
</tr>
<tr>
<td>LEAMP</td>
<td>NA (&lt;3 centers)</td>
<td>14276</td>
</tr>
<tr>
<td>OAAA</td>
<td>565</td>
<td>12200</td>
</tr>
<tr>
<td>PVI</td>
<td>2287</td>
<td>187177</td>
</tr>
<tr>
<td>SUPRA</td>
<td>472</td>
<td>17230</td>
</tr>
<tr>
<td>TEVAR</td>
<td>NA (&lt;3 centers)</td>
<td>13954</td>
</tr>
<tr>
<td>Varicose Veins</td>
<td>NA (&lt;3 centers)</td>
<td>30094</td>
</tr>
<tr>
<td>Overall</td>
<td>6495</td>
<td>586246</td>
</tr>
</tbody>
</table>
Physician Specialties Across Your Region (as of June 30, 2019, N=28 Physicians)
# Percentage of Procedures with Follow-Up within 9-21 Months

Procedures performed between July 1, 2016 and June 30, 2017

Data for this report include all cases with surgery date between July 1, 2016 and June 30, 2017, that had been entered into the VQI as of June 30, 2019. The table below shows the number of procedures in the VQI, and the percentage of those procedures with long-term follow-up.

<table>
<thead>
<tr>
<th>Procedure</th>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>AVACCESS</td>
<td>NA (&lt;3 centers)</td>
<td>7666 (59%)</td>
<td></td>
</tr>
<tr>
<td>CAS</td>
<td>NA (&lt;3 centers)</td>
<td>4398 (62%)</td>
<td></td>
</tr>
<tr>
<td>CEA</td>
<td>NA (&lt;3 centers)</td>
<td>17403 (69%)</td>
<td></td>
</tr>
<tr>
<td>EVAR</td>
<td>132 (61%)</td>
<td>6616 (71%)</td>
<td></td>
</tr>
<tr>
<td>INFRA</td>
<td>139 (62%)</td>
<td>7327 (70%)</td>
<td></td>
</tr>
<tr>
<td>IVCF</td>
<td>NA (&lt;3 centers)</td>
<td>2240 (62%)</td>
<td></td>
</tr>
<tr>
<td>LEAMP</td>
<td>NA (&lt;3 centers)</td>
<td>2394 (62%)</td>
<td></td>
</tr>
<tr>
<td>OAAA</td>
<td>NA (&lt;3 centers)</td>
<td>1250 (68%)</td>
<td></td>
</tr>
<tr>
<td>PVI</td>
<td>452 (77%)</td>
<td>26918 (70%)</td>
<td></td>
</tr>
<tr>
<td>SUPRA</td>
<td>NA (&lt;3 centers)</td>
<td>2285 (69%)</td>
<td></td>
</tr>
<tr>
<td>TEVAR</td>
<td>NA (&lt;3 centers)</td>
<td>2230 (62%)</td>
<td></td>
</tr>
<tr>
<td>Overall (July 2016-June 2017)</td>
<td>1119 (63%)</td>
<td>80727 (68%)</td>
<td></td>
</tr>
<tr>
<td>Overall (July 2015-June 2016)</td>
<td>NA (&lt;3 centers)</td>
<td>73396 (73%)</td>
<td></td>
</tr>
</tbody>
</table>
Percentage With Long-Term Follow-Up by Year

Regional data are not shown for the region with <3 centers with at least 10 cases.
Long-Term Follow-Up by Center in Your Region (July 2016-June 2017)

Centers (centers with <10 cases not shown)

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

Long-Term Follow-Up by Region Across VQI (July 2016-June 2017)

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

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

Procedures performed between June 1, 2018 and May 31, 2019

Excludes patients who died in hospital and patients who were not treated for medical reason. “Antiplatelet” is defined as ASA or P2Y12 inhibitor.

Data for this report include all cases with surgery date between June 1, 2018 and May 31, 2019, that had been entered into the VQI as of June 30, 2019. The table below shows the number of procedures in the VQI, and the percentage of patients receiving discharge medications.

<table>
<thead>
<tr>
<th>Number of Procedures at Your Center</th>
<th>Antiplatelet+Statin</th>
<th>Antiplatelet Only</th>
<th>Statin Only</th>
<th>Neither</th>
</tr>
</thead>
<tbody>
<tr>
<td>Your Region Overall</td>
<td>1069</td>
<td>81%</td>
<td>8%</td>
<td>8%</td>
</tr>
<tr>
<td>VQI Overall</td>
<td>75598</td>
<td>83%</td>
<td>10%</td>
<td>4%</td>
</tr>
</tbody>
</table>
Percentage Receiving Discharge Antiplatelet+Statin by Year

Regional data are not shown for the region with <3 centers with at least 10 cases.
Discharge Antiplatelet+Statin Rate by Center in Your Region (June 2018-May 2019)

Other centers in your region
Your center

Centers (centers with <10 cases not shown)

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

Discharge Antiplatelet+Statin Rate by Region Across VQI (June 2018-May 2019)

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

** indicates region's rate differs significantly from the VQI rate.
Carotid Endarterectomy: Stroke or Death in Hospital

Procedures performed between June 1, 2018 and May 31, 2019

Asymptomatic admissions, excluding prior ipsilateral CEA and concomitant CABG, endovascular or other arterial procedure. Asymptomatic patients are those who had no ipsilateral or contralateral TIA or stroke within 120 days prior to surgery.

Data for this report include all cases with surgery date between June 1, 2018 and May 31, 2019, that had been entered into the VQI as of June 30, 2019. The table below shows the number of CEA procedures meeting the inclusion criteria in the VQI, 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>NA (&lt;3 centers)</td>
<td>10534</td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among procedures meeting inclusion criteria</td>
<td>0.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>10001</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed rate of stroke or death among cases with complete data</td>
<td>0.8%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected rate of stroke or death among cases with complete data*</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>NA</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.
Rate of In-Hospital Stroke or Death After CEA by Region Across VQI (June 2018-May 2019)

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

**"** indicates region’s observed rate differs significantly from its expected rate.
Carotid Endarterectomy: Percentage of Patients with LOS>1 Day

Procedures performed between June 1, 2018 and May 31, 2019

Asymptomatic admissions, excluding prior ipsilateral CEA, concomitant CABG, proximal endovascular or other arterial operation, in-hospital death with LOS<=1 day, procedures done on weekends or not done on admission day, LOS is based on the midnight rule used for hospital billing. Asymptomatic patients are those who had no ipsilateral or contralateral TIA or stroke within 120 days prior to surgery.

Data for this report include all cases with surgery date between June 1, 2018 and May 31, 2019, that had been entered into the VQI as of June 30, 2019. The table below shows the number of CEA procedures meeting inclusion criteria in the VQI, and the observed and expected rates of those cases with LOS>1 Day.

<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>NA (&lt;3 centers)</td>
<td>9826</td>
<td></td>
</tr>
<tr>
<td>Observed rate of LOS&gt;1 day among procedures meeting inclusion criteria</td>
<td>22%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>9411</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Observed rate of LOS&gt;1 day among cases with complete data</td>
<td>22%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Expected rate of LOS&gt;1 day among cases with complete data*</td>
<td>NA</td>
<td></td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>NA</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.
Rate of CEA Patients With LOS>1 Day by Region Across VQI (June 2018-May 2019)

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

**"** indicates region’s observed rate differs significantly from its expected rate.
Endovascular AAA Repair: Percentage of Patients with LOS>2 Days

Procedures performed between June 1, 2018 and May 31, 2019

Excludes ruptured aneurysms and in-hospital deaths with LOS≤2 days, patients with prior aortic surgery, patients transferred from another hospital, procedures not done on day of admission and weekend procedures. LOS is based on the midnight rule used for hospital billing.

Data for this report include all cases with surgery date between June 1, 2018 and May 31, 2019, that had been entered into the VQI as of June 30, 2019. The table below shows the number of EVAR procedures meeting the inclusion criteria and the observed and expected rates of those cases with LOS>2 Days.

<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>139</td>
<td>5182</td>
</tr>
<tr>
<td>Observed rate of LOS&gt;2 days among procedures meeting inclusion criteria</td>
<td></td>
<td>14%</td>
<td>12%</td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td></td>
<td>135</td>
<td>4820</td>
</tr>
<tr>
<td>Observed rate of LOS&gt;2 days among cases with complete data</td>
<td></td>
<td>13%</td>
<td>12%</td>
</tr>
<tr>
<td>Expected rate of LOS&gt;2 days among cases with complete data*</td>
<td></td>
<td>17%</td>
<td>NA</td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td></td>
<td>0.26</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.
Rate of EVAR Patients With LOS>2 Days by Year

Regional data are not shown for the region with <3 centers with at least 10 cases.
Rate of EVAR Patients With LOS>2 Days in Your Region (June 2018-May 2019)

Centers (centers with <10 cases not shown)

"**" indicates center's observed rate differs significantly from its expected rate.

Rate of EVAR Patients With LOS>2 Days by Region Across VQI (June 2018-May 2019)

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

"**" indicates region's observed rate differs significantly from its expected rate.
EVAR: Rate of Sac Diameter Reporting at Long-Term Follow-Up

Procedures performed between July 1, 2016 and June 30, 2017
Excludes patients who died within 21 months of surgery.

Data for this report include all cases with surgery date between July 1, 2016 and June 30, 2017, that had been entered into the VQI as of June 30, 2019. The table below shows the number of EVAR procedures in the VQI, and the percentage of those cases in which the patient had a follow-up visit between 9 and 21 months post-surgery at which a sac diameter was recorded.

<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></td>
<td>148</td>
<td>6150</td>
</tr>
<tr>
<td>Percentage with sac diameter recorded at follow-up</td>
<td></td>
<td>55%</td>
<td>57%</td>
</tr>
</tbody>
</table>
Regional data are not shown for the region with <3 centers with at least 10 cases.
Rate of LTFU Sac Diameter Reporting in Your Region (July 2016-June 2017)

Other centers in your region  Your center

Centers (centers with <10 cases not shown)

**"*** indicates center’s rate differs significantly from the regional rate.

Rate of LTFU Sac Diameter Reporting by Region Across VQI (July 2016-June 2017)

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

**"*** indicates region’s rate differs significantly from the VQI rate.
Infrainguinal Bypass: Rate of Major Complications

Procedures performed between June 1, 2018 and May 31, 2019

Includes only patients with indication of rest pain or tissue loss. Major complications are defined as in-hospital death, ipsilateral BK or AK amputation or graft occlusion.

Data for this report include all cases with surgery date between June 1, 2018 and May 31, 2019, that had been entered into the VQI as of June 30, 2019. The table below shows the number of INFRA cases with indication of rest pain or tissue loss in the VQI, and the percentage of those cases that resulted in in-hospital death, ipsilateral 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></td>
<td>93</td>
<td>3930</td>
</tr>
<tr>
<td>Percentage with major complications after INFRA</td>
<td></td>
<td>7.5%</td>
<td>3.8%</td>
</tr>
</tbody>
</table>
Rate of Major Complications After INFRA by Year

Regional data are not shown for the region with <3 centers with at least 10 cases.
Rate of Major Complications After INFRA in Your Region (June 2018-May 2019)

Other centers in your region  □  Your center

Centers (centers with <10 cases not shown)

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

Rate of Major Complications After INFRA by Region Across VQI (June 2018-May 2019)

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

*** indicates region’s rate differs significantly from the VQI rate.
Non-Ruptured Open AAA: In-Hospital Mortality

Procedures performed between June 1, 2018 and May 31, 2019

Excludes ruptured aneurysms.

Data for this report include all cases with surgery date between June 1, 2018 and May 31, 2019, that had been entered into the VQI as of June 30, 2019. The table below shows the number of OAAA procedures meeting the inclusion criteria in the VQI, and the observed and expected rates of in-hospital death for those cases.

<table>
<thead>
<tr>
<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>NA (&lt;3 centers)</td>
<td>1009</td>
</tr>
<tr>
<td>Observed rate of in-hospital death among procedures meeting inclusion criteria</td>
<td>4.2%</td>
<td></td>
</tr>
<tr>
<td>Number of procedures with complete data*</td>
<td>914</td>
<td></td>
</tr>
<tr>
<td>Observed rate of in-hospital death among cases with complete data</td>
<td>4%</td>
<td></td>
</tr>
<tr>
<td>Expected rate of in-hospital death among cases with complete data*</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>P-value for comparison of observed and expected rates</td>
<td>NA</td>
<td></td>
</tr>
<tr>
<td>Observed rate of in-hospital death among procedures with infrarenal proximal clamp</td>
<td>2.6%</td>
<td></td>
</tr>
<tr>
<td>Observed rate of in-hospital death among procedures with suprarenal proximal clamp</td>
<td>5.7%</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.
Rate of In-Hospital Death After OAAA by Year

Regional data are not shown for the region with <3 centers with at least 10 cases.
Rate of In-Hospital Death After OAAA by Region Across VQI (June 2018-May 2019)

- **Observed**
- **Expected**

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

"**" indicates region's observed rate differs significantly from its expected rate.
PVI: Percentage of Claudicants with ABI/Toe Pressure Reported Before Procedure

Procedures performed between June 1, 2018 and May 31, 2019

“ABI or toe pressure reported” indicates at least one measure was recorded for the side of the operation, or on both sides for bilateral and aortic procedures.

Data for this report include all cases with surgery date between June 1, 2018 and May 31, 2019, that had been entered into the VQI as of June 30, 2019. The table below shows the number of PVI procedures with indication of claudication in the VQI, and the percentage of those cases in which ABI or toe pressure was recorded.

<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 with indication of claudication</td>
<td></td>
<td>181</td>
<td>12890</td>
</tr>
<tr>
<td>Percentage with ABI/toe pressure recorded before procedure</td>
<td></td>
<td>77%</td>
<td>77%</td>
</tr>
<tr>
<td>Percentage who were current smokers</td>
<td></td>
<td>42%</td>
<td>38%</td>
</tr>
</tbody>
</table>
Rate of ABI/Toe Pressure Assessment Before PVI by Year

Regional data are not shown for the region with <3 centers with at least 10 cases.
Rate of ABI/Toe Pressure Assessment Before PVI in Your Region (June 2018-May 2019)

- Other centers in your region
- Your center

Centers (centers with <10 cases not shown)

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

Rate of ABI/Toe Pressure Assessment Before PVI by Region Across VQI (June 2018-May 2019)

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

*** indicates region's rate differs significantly from the VQI rate.
Suprainguinal Bypass: Rate of Major Complications

Procedures performed between June 1, 2018 and May 31, 2019
Includes only patients with indication of rest pain or tissue loss. Major complications are defined as in-hospital death, ipsilateral BK or AK amputation or graft occlusion.

Data for this report include all cases with surgery date between June 1, 2018 and May 31, 2019, that had been entered into the VQI as of June 30, 2019. The table below shows the number of SUPRA cases in the VQI, and the percentage of those cases that resulted in 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 SUPRA procedures</td>
<td></td>
<td>40</td>
<td>803</td>
</tr>
<tr>
<td>Percentage with major complications after SUPRA</td>
<td>8%</td>
<td>5%</td>
<td></td>
</tr>
</tbody>
</table>
Rate of Major Complications After SUPRA by Year

Regional data are not shown for the region with <3 centers with at least 10 cases.
Rate of Major Complications After SUPRA in Your Region (June 2018-May 2019)

- Other centers in your region
- Your center

Centers (centers with <10 cases not shown)

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

Rate of Major Complications After SUPRA by Region Across VQI (June 2018-May 2019)

- New England
- VQI
- G. Lakes
- Canada

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

"**" indicates region's rate differs significantly from the VQI rate.
EVAR: Percentage of Elective Patients with AAA Diameter Within SVS Guideline (≥5.5cm for Men; ≥5 cm for Women)

Procedures performed between June 1, 2018 and May 31, 2019

Excludes non-elective procedures. If the patient has any iliac aneurysm, the guideline is considered to have been met regardless of AAA diameter.

Data for this report include all cases with surgery date between June 1, 2018 and May 31, 2019, that had been entered into the VQI as of June 30, 2019. The table below shows the number of elective EVAR procedures in the VQI, and the percentage of those cases meeting the SVS sac size guideline.

<table>
<thead>
<tr>
<th>Your Center</th>
<th>Your Region</th>
<th>VQI Overall</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of elective EVAR procedures</td>
<td>148</td>
<td>5567</td>
</tr>
<tr>
<td>Percentage meeting SVS sac size guideline</td>
<td>91%</td>
<td>72%</td>
</tr>
</tbody>
</table>
Rate of EVAR Cases Meeting Sac Size Guideline by Year

Regional data are not shown for the region with <3 centers with at least 10 cases.
Rate of EVAR Cases Meeting Sac Size Guideline in Your Region (June 2018-May 2019)

- Other centers in your region
- Your center

Centers (centers with <10 cases not shown)

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

Rate of EVAR Cases Meeting Sac Size Guideline by Region Across VQI (June 2018-May 2019)

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

- Successes
- Challenges
- What is your centre’s QI project??

Graham.Roche-Nagle@uhn.ca
Naomi.Eisenberg@uhn.ca
Meeting Evaluation:

- What did you like about this meeting?
- What can we do better?
- Next meeting location: ???
Patients Screened

Patients Screened for Eligibility
N= 157

Ineligible due to Age (< 65 years of age)
N= 52

Ineligible due to date of discharge
N= 5

Missing data
N= 14

Eligible Patients with Complete Data
N= 86
## Opioid Prescription On Discharge

<table>
<thead>
<tr>
<th>Variable</th>
<th>Opioid Use Post-Discharge, N=41</th>
<th>No Opioid Use Post-Discharge, N=45</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (m)(%)</td>
<td>33 (81%)</td>
<td>28 (62%)</td>
</tr>
<tr>
<td>Age at Surgery</td>
<td>75.6 (10%)</td>
<td>78.5 (8%)</td>
</tr>
<tr>
<td><strong>Presurgical Comorbidities:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAD</td>
<td>17 (42%)</td>
<td>18 (40%)</td>
</tr>
<tr>
<td>CVD</td>
<td>7 (17%)</td>
<td>9 (20%)</td>
</tr>
<tr>
<td>HPT</td>
<td>37 (90%)</td>
<td>40 (89%)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>18 (44%)</td>
<td>18 (40%)</td>
</tr>
<tr>
<td>COPD</td>
<td>10 (24%)</td>
<td>11 (24%)</td>
</tr>
<tr>
<td>Kidney Disease</td>
<td>7 (17%)</td>
<td>4 (9%)</td>
</tr>
<tr>
<td><strong>Surgery Type:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angioplasty</td>
<td>25 (61%)</td>
<td>34 (73%)</td>
</tr>
<tr>
<td>Vascular Bypass Grafting</td>
<td>3 (7 %)</td>
<td>-</td>
</tr>
<tr>
<td>Open Aortic Repairs</td>
<td>2 (5 %)</td>
<td>5 (11%)</td>
</tr>
<tr>
<td>Carotid Enterectomy</td>
<td>-</td>
<td>1 (2%)</td>
</tr>
<tr>
<td>EVAR</td>
<td>9 (22%)</td>
<td>3 (6%)</td>
</tr>
<tr>
<td>Lower limb amputation</td>
<td>2 (5 %)</td>
<td>4 (9%)</td>
</tr>
</tbody>
</table>
Results

- 56% of patients on opioids post-op were successfully weaned off opioids by 90 days.
- 24% of patients went on to develop chronic opioid use (Up to 365 days post-op).
- 11% of the patient cohort remaining on opioids by 365 days post-op.
<table>
<thead>
<tr>
<th>Variable</th>
<th>Chronic Opioid Use (&gt; 270 days) (n=10)</th>
<th>Non-Chronic Opioid Use (n=76)</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Demographics:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Gender (m)(%)</td>
<td>7 (70%)</td>
<td>54 (71%)</td>
</tr>
<tr>
<td>Age at Surgery</td>
<td>78.4 (10%)</td>
<td>77.0 (9%)</td>
</tr>
<tr>
<td><strong>Presurgical Comorbidities:</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>CAD</td>
<td>3 (30%)</td>
<td>32 (42%)</td>
</tr>
<tr>
<td>CVD</td>
<td>2 (20%)</td>
<td>14 (18%)</td>
</tr>
<tr>
<td>HPT</td>
<td>10 (100%)</td>
<td>67 (88%)</td>
</tr>
<tr>
<td>Diabetes</td>
<td>8 (80%)</td>
<td>28 (37%), p= 0.015</td>
</tr>
<tr>
<td>COPD</td>
<td>4 (40%)</td>
<td>17 (22%)</td>
</tr>
<tr>
<td>Kidney Disease</td>
<td>1 (10%)</td>
<td>10 (13%)</td>
</tr>
<tr>
<td><strong>Surgery Type</strong></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Angioplasty</td>
<td>9 (90%)</td>
<td>50 (64%)</td>
</tr>
<tr>
<td>Vascular Bypass Grafting</td>
<td>-</td>
<td>3 (4%)</td>
</tr>
<tr>
<td>Open Aortic Repairs</td>
<td>-</td>
<td>7 (9%)</td>
</tr>
<tr>
<td>Carotid Endarterectomy</td>
<td>-</td>
<td>1 (1%)</td>
</tr>
<tr>
<td>Endovascular Aortic Repair (EVAR)</td>
<td>1 (14%)</td>
<td>11 (14%)</td>
</tr>
<tr>
<td>Lower Limb Amputation</td>
<td>-</td>
<td>6 (8%)</td>
</tr>
</tbody>
</table>
There was a significantly higher incidence of Diabetes among patients with Chronic Opioid Use compared to those with Non-Chronic Opioid Use.
Patients who were Chronic Opioid Users had a significantly higher number of opioid prescribers and opioid dispensing pharmacies compared to Patients who were Non-Chronic Opioid Users
Chronic Opioid Users had a significantly higher mean rank use of Non-Opioid Pain Medications, compared to Non-Chronic Opioid Users.