Southeastern Vascular Study Group

Fall 2015 Regional Meeting
October 29, 2015
10:30 am – 3:30 pm
Location: CAMLS Center Tampa, FL
Agenda:

- **Morning Session: All Attendees, 10:00 AM – 12:15 PM**
  - Welcome and SEVSG/VQI Update -- Adam Beck, MD
  - M2S/Pathways update -- Betti Kerrigan, VQI Representative
  - The Society of Vascular Quality Performance and Measures Committee and the VQI -- Brad Johnson, MD
  - Participation in quality registries and the effect on quality of care -- Yazan Duwayri, MD
  - Participation in the VQI, does it make a difference? -- Dan Neal, M.S., Analytics Director SVS VQI
  - Smoking Cessation for the Vascular Specialist -- Barbara Richardson, PhD, RN/Kathy Nichols, MS, CHES
  - Engaging patients in their care: A patient’s perspective -- Ed Wainwright, Mended Hearts Representative
  - Cardiac Risk Assessment Models in the VQI -- Sal Scali, MD
  - ICD-10 for the Vascular Surgeon -- Ginger Manos, MD
Agenda:

**Lunch Break (Lunch Provided)**
- Lunch Presentations and Discussion:
  - Video presentation: Smoking cessation interview do’s and don'ts - Lisa Merlo Green, PhD
  - The quality of our quality measures: PQRS measures and their ability to determine quality of care – Rodney Bensley, MD

**Data Abstractor Breakout (Others will continue with presentations from the morning): 1:00 PM – 3:00 PM**
- Your Data is a Valuable Asset -- Merri Goodman, RN
- VQI & Epic Electronic Health Record Integration and/or the data import service -- Betti Kerrigan, VQI Representative
- Data Manager Meeting Update -- Yuming Lin, MSM
- Open Discussion: Please bring any and all questions or complaints!
  - Obtaining long-term follow-up
  - Difficult Data points and physician engagement

**All Attendees, 3:00-3:30 PM**
- Future Directions for the SEVSG:
  - One Little Goal
  - One Big Goal
- Closing Remarks: Adam Beck, MD
Please Complete the Post Meeting Survey:

• https://www.surveymonkey.com/r/5HDBJY8
Welcome and Introductions

Albany Vascular Specialist Center
Athens Regional, Athens GA
Baptist Hospital of Miami
Coastal Vascular & Interventional
Florida Hospital
Floyd Medical Center
Grady Memorial Hospital (GA)
John F. Lucas III (MS)
Mayo Clinic
Memorial Health University
Memorial Regional Hospital
Northside Hospital Atlanta
Northside Hospital Cherokee
Northside Hospital Forsyth

Orlando Health-Dr. P. Phillips Hospital
Orlando Health-South Seminole
Piedmont Health
Redmond Regional Medical Center
Sarasota Memorial Hospital
South Miami Hospital
St. Anthony’s Hospital
Tampa Cardiovascular Associates
Tampa General Hospital
The Emory Clinic
The Vein and Vascular Institute
University of Florida-Gainesville
Vascular Quality Initiative

- Launched (2011)
  - To improve the quality, safety, effectiveness and cost of vascular health care by collecting and exchanging information.
  - Includes any specialty performing peripheral vascular procedures
  - Listed by AHRQ as a Patient Safety Organization in 2011
Patient Safety Organization:

- Use a web-based registry format to collect clinical data for common major procedures
  - Carotid, aortic, lower extremity, dialysis access
    - Both endovascular and open surgical procedures
  - In-hospital and one-year follow-up data
    - Patient characteristics, processes of care and outcomes
  - All consecutive procedures
    - Audited against hospital and physician claims data
    - Provides denominator for event rate comparisons
Methods:

• Quality reports to centers and physicians
  – Key processes of care and outcomes
• Blinded benchmark comparison with others
  – Both center and physician benchmarking
  – Risk-adjusted comparisons for adverse events
• Analyze variation across centers
  – Identify processes associated with best outcomes
  – Make recommendations for best practice
National VQI Update: Adam Beck, MD
Vascular Quality Initiative®

Growth of Participating Centers

354 Centers, 46 States + Ontario
<table>
<thead>
<tr>
<th>Total Procedures Captured (as of 8/1/2015)</th>
<th>230,281</th>
</tr>
</thead>
<tbody>
<tr>
<td>Carotid Endarterectomy</td>
<td>54,523</td>
</tr>
<tr>
<td>Carotid Artery Stent</td>
<td>8,601</td>
</tr>
<tr>
<td>Endovascular AAA Repair</td>
<td>21,667</td>
</tr>
<tr>
<td>Open AAA Repair</td>
<td>7,084</td>
</tr>
<tr>
<td>Peripheral Vascular Intervention</td>
<td>72,163</td>
</tr>
<tr>
<td>Infra-Inguinal Bypass</td>
<td>25,265</td>
</tr>
<tr>
<td>Supra-Inguinal Bypass</td>
<td>8,366</td>
</tr>
<tr>
<td>Thoracic and Complex EVAR</td>
<td>4,563</td>
</tr>
<tr>
<td>Hemodialysis Access</td>
<td>19,579</td>
</tr>
<tr>
<td>Lower Extremity Amputations</td>
<td>3,451</td>
</tr>
<tr>
<td>IVC Filter</td>
<td>3,584</td>
</tr>
<tr>
<td>Varicose Vein</td>
<td>1,435</td>
</tr>
</tbody>
</table>

**VQI Total Procedure Volume**

![Graph showing VQI Total Procedure Volume from Jul-13 to Jul-15](image-url)
Long Term Follow Up

Required Fields be established for LTFU submissions to qualify for “credit.”

Essential Elements for LTFU being defined: e.g., amputation after LEB (but not ABI), and sac size/endo leak after EVAR.
Long Term Follow Up

• LTFU goal 80%!

• The reporting period to calculate percent LTFU would be 9-21 months after the procedure plus an additional 3 months for data entry. Thus, for procedures performed in 2013, the report would be run December 31, 2015 to calculate % LTFU for 2013. This two-year period to capture LTFU after the year in which the procedure was performed, gives new sites in VQI a full 2 years to develop their work flow to capture LTFU information.
Long Term Follow Up

Low Performers would be defined as centers or individual physicians with < 50% mean LTFU for the registries in which they participate.

- Probationary period for the next year, receiving assistance from the PSO to improve (via peer advisors and best practice toolkit): If after one year not improved to at least 50%,
  - Individual surgeons (based on individual numbers) could not use VQI participation for Maintenance of Board Certification or PQRS reporting until they improved their LTFU rate to at least 50%.
  - All LTFU data would be excluded from research datasets for any center with < 50% LTFU for the reporting years in the research dataset.

- Low performing centers would be excluded from participating in industry trials
Long Term Follow Up

High Performers would be rewarded by annual publication of a VQI Participation Award
Recognition Award

- Physician and attendance at Regional meetings (webinar/phone ok)
  - 0 points if no MD from site attends
  - 1 point if 1 MD attends
  - 2 points if 2 MDs attend or 50% of all MDs
  - 3 points if >2 MDs attend or 100% of all MDs
Recognition Award

- LTFU at least 9 months for last year with 2 years available to enter follow-up
  - < 70% mean follow-up in all registries = 0 points
  - 70% mean follow-up in all registries = 1 point
  - 80% mean follow-up in all registries = 2 points
  - 90% mean follow-up in all registries = 3 points
Recognition Award

- Registry participation (dependent on type of procedures the center performs)
  - Participate in 1-2 = 0 points
  - Participate in 3-7 = 1 point
  - Participate in 8-10 = 2 points
  - Participate in 11-14 = 3 points
Recognition Award

- <3 total points = No stars
- 3-4 points = 1 star
- 5-6 points = 2 stars
- 7 or more points = 3 stars
VQI Deliverables
VQI Physician Push Reporting

• First Physician level report pushed to participating Physicians June 2015
  – Optimal Medications at Discharge
  – Long Term Follow up
  – Indications report (LEB/PVI, oAAA/EVAR)
<table>
<thead>
<tr>
<th>Discharge medications</th>
<th>2012</th>
<th>2013</th>
<th>2014</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of procedures you reported</td>
<td>50</td>
<td>50</td>
<td>41</td>
</tr>
<tr>
<td>Percentage of your patients receiving antiplatelets+statin</td>
<td>88%</td>
<td>90%</td>
<td>83%</td>
</tr>
<tr>
<td>Percentage receiving antiplatelets+statin in your region*</td>
<td>78%</td>
<td>80%</td>
<td>81%</td>
</tr>
<tr>
<td>Percentage receiving antiplatelets+statin in the VQI overall</td>
<td>72%</td>
<td>73%</td>
<td>74%</td>
</tr>
</tbody>
</table>
Rate of Patients Receiving Antiplatelets+Statin by Year

- VQI
- Your Region
- You
## Long-term follow-up

<table>
<thead>
<tr>
<th></th>
<th>2011</th>
<th>2012</th>
<th>2013</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of procedures you reported</td>
<td>54</td>
<td>53</td>
<td>55</td>
</tr>
<tr>
<td>Percentage of your patients with &gt;9 months' follow-up</td>
<td>85%</td>
<td>85%</td>
<td>78%</td>
</tr>
<tr>
<td>Percentage with &gt;9 months' follow-up in your region*</td>
<td>69%</td>
<td>73%</td>
<td>46%</td>
</tr>
<tr>
<td>Percentage with &gt;9 months' follow-up in the VQI overall</td>
<td>69%</td>
<td>70%</td>
<td>53%</td>
</tr>
</tbody>
</table>
Follow-up Rate by Physician in Your Region (2013)

- Other physicians in your region
- You
COPI (Center Opportunity Profile for Improvement)

- Infra LOS sent June 2015
- Plan to alternate with push reports with a quarterly COPI report goal
- Align with QCDR measures approved by CMS specifically for VQI
Percent of Procedures with Length of Stay > 7 Days after Infrainguinal Bypass from 2011 to September 2014 (adjusted for patient risk factors listed in COPI report)

VQI Centers (YC = Your center)
Regional Variation
% Procedures with LOS > 7 days
* p-value < 0.01

Nor Cal 13%
Midwest 14%
Rocky Mtn 16%
New England 17%
Carolinias 20%
Mid-America 21%
Upper Midwest 21%
So Cal 22%
Others 22%
VQI overall 22%
Great Lakes 23%
Virginiias 26%
Mid-Atlantic 27%
New York 27%
FL/GA/MS* 31%
Michigan* 31%
Chesapeake* 40%
## Vascular Quality Initiative®

<table>
<thead>
<tr>
<th></th>
<th>Your center</th>
<th>Your region</th>
<th>VQI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Number of procedures, 2011 to 9/30/2014</td>
<td>151</td>
<td>4202</td>
<td>15001</td>
</tr>
<tr>
<td>Number of procedures excluded*</td>
<td>20</td>
<td>378</td>
<td>1778</td>
</tr>
<tr>
<td>Number of procedures included</td>
<td>131</td>
<td>3824</td>
<td>13223</td>
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</table>

### Length of stay (days)

<table>
<thead>
<tr>
<th></th>
<th>Your center</th>
<th>Your region</th>
<th>VQI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Average</td>
<td>8.7</td>
<td>5.6</td>
<td>6.1</td>
</tr>
<tr>
<td>Standard deviation</td>
<td>7.7</td>
<td>5.4</td>
<td>6.2</td>
</tr>
<tr>
<td>Median</td>
<td>7</td>
<td>4</td>
<td>4</td>
</tr>
</tbody>
</table>

### % LOS > 7 days

<table>
<thead>
<tr>
<th></th>
<th>Your center</th>
<th>Your region</th>
<th>VQI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Observed</td>
<td>43%</td>
<td>17%</td>
<td>22%</td>
</tr>
<tr>
<td>Expected</td>
<td>19%</td>
<td>22%</td>
<td>22%</td>
</tr>
</tbody>
</table>

Observed rate significantly different from expected? p<.01

LOS equals discharge date minus date of admission.

*Exclusion criteria: Death prior to 8 days, outliers (>365 days) in LOS, age < 40, Asymptomatic and Not Treated in Ipsilateral Indication, None in Ipsilateral Pathology

**Double asterisk shown if center had <6 procedures for which the SD could not be calculated or lacked meaning due to small numbers
Excludes patients who died prior to 8 days, outliers (>365 days) in LOS, age < 40, Asymptomatic and Not Treated in Ipsilateral Indication, None in Ipsilateral Pathology

### INFRA: Risk factors for LOS>7 days

<table>
<thead>
<tr>
<th>Patient characteristics</th>
<th>Odds ratio</th>
<th>Your center</th>
<th>Your region</th>
<th>VQI</th>
</tr>
</thead>
<tbody>
<tr>
<td>CHF (ref*=None)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mild</td>
<td>1.2</td>
<td>9.9%</td>
<td>11.3%</td>
<td>10.0%</td>
</tr>
<tr>
<td>Moderate</td>
<td>1.7</td>
<td>6.9%</td>
<td>3.7%</td>
<td>5.4%</td>
</tr>
<tr>
<td>Severe</td>
<td>3.8</td>
<td>0.8%</td>
<td>0.6%</td>
<td>0.7%</td>
</tr>
<tr>
<td>Homeless</td>
<td>2.9</td>
<td>0.0%</td>
<td>0.3%</td>
<td>0.3%</td>
</tr>
<tr>
<td>Indication (ref=Claud.)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Rest Pain</td>
<td>1.6</td>
<td>28.2%</td>
<td>21.7%</td>
<td>23.1%</td>
</tr>
<tr>
<td>Tissue Loss</td>
<td>2.5</td>
<td>38.9%</td>
<td>50.8%</td>
<td>49.4%</td>
</tr>
<tr>
<td>Preop ambul. (ref=Amb)</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>W/asst. or wheelchair</td>
<td>1.3</td>
<td>13.0%</td>
<td>22.2%</td>
<td>24.5%</td>
</tr>
<tr>
<td>Bedridden</td>
<td>2.7</td>
<td>0.0%</td>
<td>0.4%</td>
<td>0.5%</td>
</tr>
</tbody>
</table>

### Procedure details

<table>
<thead>
<tr>
<th>Urgency (ref=Elective)</th>
<th>Odds ratio</th>
<th>Your center</th>
<th>Your region</th>
<th>VQI</th>
</tr>
</thead>
<tbody>
<tr>
<td>Urgent</td>
<td>1.5</td>
<td>22.1%</td>
<td>24.3%</td>
<td>21.5%</td>
</tr>
<tr>
<td>Emergent</td>
<td>2.3</td>
<td>0.8%</td>
<td>2.8%</td>
<td>3.7%</td>
</tr>
<tr>
<td>Postop complications</td>
<td>% Smoking</td>
<td>% Moderate</td>
<td>% High</td>
<td></td>
</tr>
<tr>
<td>--------------------------------------</td>
<td>-----------</td>
<td>------------</td>
<td>--------</td>
<td></td>
</tr>
<tr>
<td>Wound infection</td>
<td>6.9%</td>
<td>3.6%</td>
<td>3.5%</td>
<td></td>
</tr>
<tr>
<td>Tranfusion &gt; 2 units</td>
<td>13.7%</td>
<td>9.9%</td>
<td>13.0%</td>
<td></td>
</tr>
<tr>
<td>MI (ref=No)</td>
<td>0.8%</td>
<td>1.6%</td>
<td>1.5%</td>
<td></td>
</tr>
<tr>
<td>Troponin only</td>
<td>1.5%</td>
<td>1.3%</td>
<td>1.1%</td>
<td></td>
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<tr>
<td>EKG or clinical</td>
<td>3.1%</td>
<td>3.9%</td>
<td>3.7%</td>
<td></td>
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<tr>
<td>Dysrhythmia</td>
<td>2.3%</td>
<td>0.8%</td>
<td>0.8%</td>
<td></td>
</tr>
<tr>
<td>Respiratory (ref=None)</td>
<td>1.5%</td>
<td>0.8%</td>
<td>1.3%</td>
<td></td>
</tr>
<tr>
<td>Pneumonia</td>
<td>2.3%</td>
<td>0.8%</td>
<td>0.8%</td>
<td></td>
</tr>
<tr>
<td>Ventilator postop</td>
<td>14.5%</td>
<td>11.4%</td>
<td>11.3%</td>
<td></td>
</tr>
<tr>
<td>Reoperation</td>
<td>4.6%</td>
<td>5.6%</td>
<td>7.1%</td>
<td></td>
</tr>
<tr>
<td>Ipsilateral amp. (ref=No)</td>
<td>2.3%</td>
<td>1.6%</td>
<td>1.8%</td>
<td></td>
</tr>
<tr>
<td>Minor</td>
<td>3%</td>
<td>4.6%</td>
<td>5.6%</td>
<td></td>
</tr>
<tr>
<td>Major</td>
<td>6.3%</td>
<td>2.3%</td>
<td>1.6%</td>
<td></td>
</tr>
<tr>
<td>Dschg. Anticoag. (ref=No)</td>
<td>45.8%</td>
<td>28.3%</td>
<td>25.5%</td>
<td></td>
</tr>
<tr>
<td>Warfarin</td>
<td>1.6%</td>
<td>28.3%</td>
<td>25.5%</td>
<td></td>
</tr>
</tbody>
</table>
EPIC Update

Meeting at VAM with VQI EPIC Users and EPIC

• Initial Focus will be to document and share the smart data elements that should be used to support the current M2S data import fields

• Once the pilot site is working, we will ask them to upload the report to the EPIC UserWeb with an appropriate name (e.g. “VQI General and Demographics Report”).

• M2S will then let all EPIC customers know that this report is available.
EVAR Cost Pilot: MedAssets

- 20 VQI sites selected for Pilot (EVAR volume)
- Understanding the economics of vascular procedures is critically important
- Goal of Project: combine hospital cost data (MedAssets) with detailed clinical data (VQI) to accurately benchmark similar procedures
Post-Approval Device Surveillance in the Vascular Quality Initiative
Use of VQI for Post Approval Surveillance

- Aligns with FDA recommendations to use registries to collect **real world** data for post approval surveillance

- “FDA believes that device **registries** should serve as the foundation of our National Medical Device Postmarket Surveillance System.”
Benefits to VQI Participants

• Reduces redundant and disparate data collection
• Offsets the cost to participate in the VQI
• Supports innovation and device development
• Promotes collaboration
• Supports long-term patient follow-up and quality improvement
Status of VQI Device Surveillance Projects

Surveillance to meet FDA regulatory requirements
  - TEVAR Dissection: Medtronic and W.L. Gore
  - EVAR Aorfix: Lombard Medical

Company Sponsored Device Surveillance
  - Hemodialysis Dialysis Access: Vascular Flow Technologies
Pathways Development update
Betti Kerrigan
Numerator Drill Down

• Allows users to drill down from analytics tool to patient list to patient form

• Demo
### Vascular Quality Initiative

**Physician Level Reporting 3 –**

#### Analytics & Reporting Engine

#### Report Name: Report001

**Procedure Type(s):** Carotid Artery Stent, Carotid Endarterectomy, Intra-inguinal bypass, Peripheral Vascular Intervention

**View:** 0 Center 0 Physician

**Update Report**

#### Results

<table>
<thead>
<tr>
<th>Procedure Variable Name</th>
<th>Physician 1</th>
<th>Physician 2</th>
<th>Physician 3</th>
<th>Physician 4</th>
</tr>
</thead>
<tbody>
<tr>
<td>Height (inches)</td>
<td>64.6 ± 3.5; 66.0</td>
<td>64.6 ± 3.5; 66.0</td>
<td>64.6 ± 3.5; 66.0</td>
<td>64.6 ± 3.5; 66.0</td>
</tr>
<tr>
<td>Race</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>American Indian or Alaskan Native</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.2%</td>
<td>0.2%</td>
</tr>
<tr>
<td>Black or African American</td>
<td>18.6%</td>
<td>18.6%</td>
<td>18.6%</td>
<td>18.6%</td>
</tr>
<tr>
<td>Native Hawaiian or other Pacific Islander</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>White</td>
<td>80.4%</td>
<td>80.4%</td>
<td>80.4%</td>
<td>80.4%</td>
</tr>
<tr>
<td>More than 1 race</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
<td>0.1%</td>
</tr>
<tr>
<td>Unknown / Other</td>
<td>0.6%</td>
<td>0.6%</td>
<td>0.6%</td>
<td>0.6%</td>
</tr>
<tr>
<td>Death</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
<td>99%</td>
</tr>
<tr>
<td>Yes</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
<td>0%</td>
</tr>
<tr>
<td>Missing Value or N/A</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
<td>1%</td>
</tr>
</tbody>
</table>
Text Download Option

Select Parameters
- Procedures: Thoracic and Complex EVAR
- Download Format: Text
- Physician: ALL
- Surgery Date From: 01/01/2015
- Surgery Date To: 08/15/2015
- Limited Data Set: No
- Include Inactive Physicians?: No

Text Download
- Primprocid | Gender | Hispanic or Latino | Race
  - 237757 | Male | Yes | American Indian or Alaskan Native
  - 237848 | Male | Yes | American Indian or Alaskan Native
  - 238458 | Male | Yes | American Indian or Alaskan Native

Numeric Download
- Primprocid | Gender | Hispanic or Latino | Race
  - 237757 | 1 | 1 | 1
  - 237848 | 1 | 1 | 1
  - 238458 | 1 | 1 | 1
Additional Developments

• Download option Text/Numeric
• Batched data downloads for hospital systems

Please continue to submit development suggestions through representative from M2S
Vascular Quality Initiative

VQI Data Abstraction Partners

Q-Centrix

Dan Martin
VP Business Development
O: (603) 294-1145 Ext. 125
C: (704) 517-6375
dmartin@q-centrix.com
www.q-centrix.com

Pamela Rottman
President
O: 336-684-7253
prottman@daspecialists.com
www.daspecialists.com

• Standardization, best practices and audits to improve quality of data abstraction.
• Extension of your team. No worries of case entry, staff changes or vacancies.
• Reduces costs of abstraction
• Will abstract case and/or follow up
• Pricing is similar between the two companies
SEVSG Regional Reports:
# Vascular Quality Initiative®

## LTFU Reports 2013 Procedures

<table>
<thead>
<tr>
<th>Your region</th>
<th>Follow-up rate (N)</th>
<th>VQI Follow-up rate (N)</th>
</tr>
</thead>
<tbody>
<tr>
<td>CAS</td>
<td>49% (150)</td>
<td>53% (2025)</td>
</tr>
<tr>
<td>CEA</td>
<td>61% (657)</td>
<td>55% (11261)</td>
</tr>
<tr>
<td>EVAR</td>
<td>57% (270)</td>
<td>57% (4543)</td>
</tr>
<tr>
<td>HEMO</td>
<td>77% (607)</td>
<td>61% (4517)</td>
</tr>
<tr>
<td>INFRA</td>
<td>59% (342)</td>
<td>59% (4789)</td>
</tr>
<tr>
<td>OAAA</td>
<td>57% (77)</td>
<td>61% (1149)</td>
</tr>
<tr>
<td>PVI</td>
<td>64% (273)</td>
<td>49% (14833)</td>
</tr>
<tr>
<td>SUPRA</td>
<td>49% (153)</td>
<td>52% (1751)</td>
</tr>
<tr>
<td>TEVAR</td>
<td>74% (127)</td>
<td>48% (842)</td>
</tr>
<tr>
<td><strong>2013 Overall</strong></td>
<td><strong>64% (2656)</strong></td>
<td><strong>54% (45710)</strong></td>
</tr>
<tr>
<td><strong>2012 Overall</strong></td>
<td><strong>77% (1905)</strong></td>
<td><strong>71% (32070)</strong></td>
</tr>
</tbody>
</table>
LTFU Reports

Center Variation in Your Region (2013)

Regional Variation across VQI (2013)

* indicates region's rate is significantly different than overall VQI rate
"Others" indicates centers that do not belong to a regional group
Quality Improvement Projects
Arterial Quality Council Update:
Roles of the Module Committees

• Participation in all AQC calls (or designation of an alternative) this applies to all AQC members

• Yearly report generation including:
  – Identification of opportunities for improvement of the module (compile a list of data points that can be changed, removed or added)
  – LTFU within the module
  – Missing variable report
  – Data trends and outcomes

• Evaluation of PQRS/QCDR measure from their respective module, and identification of possible quality initiatives

• Generation of risk calculators and yearly updates to the models
Update on new PVI form changes:

Committee:

Daniel Bertges, MD Chair
Jeannette Dejonghe, MD
Misty Humphries, MD
Joe Mills, MD
Taylor Smith, MD

Thomas Brothers, MD
Robert Hieb, MD
Andy Meltzer, MD
Will Robinson, MD
Minor changes

• Capture procedures in ambulatory and office-based centers
• Cilostazol added to medications
• CIN prophylaxis: removed N-acetylcysteine, added saline hydration to bicarbonate hydration
• Record details for each access site: access guidance, sheath, closure and site specific complications
• Closure device: success vs. failure
• PVI at site of prior treatment
• Completion angiogram assessment added, removed pre-PVI runoff
• Planned amputation during or after PVI
Better recording of pre-procedure symptoms:

**Occlusive disease**

- 0 = Asymptomatic
- 1 = Claudication, > 2 blocks
- 2 = Claudication, 1-2 blocks
- 3 = Claudication, < 1 block
- 4 = Claudication < 50 feet
- 5 = Rest Pain
- 6 = Ulcer/necrosis,
- 7 = Non-healing amputation
- 8 = Both Ulcer + non-healing amp
- 9 = Acute Ischemia

**Acute ischemia**

- 1 = Viable
- 2 = Marginally threatened
- 3 = Immediately threatened
- 4 = Irreversible (nonviable)
Popliteal segments

- **P1 segment**, intercondylar fossa to proximal edge of patella
- **P2 segment**, from proximal part of patella to center of knee joint space
- **P3 segment** (below knee popliteal artery), from center of knee joint space to origin of anterior tibial artery

Degree of calcification

- 0=None
- 1=Focal
- 2=Mild
- 3=Moderate
- 4=Severe
Major changes

• Device tracking
• Wound, Ischemia and infection (Wifi) score
• TASC recorded by arterial segment rather than per artery i.e. femoral-popliteal rather than SFA alone and popliteal alone
• Improved work flow with addition of dependencies
• Improved help text
Devices = balloons, stents, atherectomy, re-entry and thrombolysis devices

1 = Plain Balloon, 2 = Specialized Balloon, 3 = Stent, 4 = Atherectomy, Manufacturer

By device name

Diameter and length
WiFi for CLI patients with tissue loss

- **Wound**
  
  **Grade 1, shallow** = small shallow ulcer(s) on distal leg or foot, any exposed bone is only limited to distal phalanx (i.e., minor tissue loss: limb salvage possible with simple digital amputation [1 or 2 digits], or skin coverage).
  
  **Grade 2, Deep** = deeper full thickness ulcer or necrosis (gangrene) on distal leg or foot with exposed bone, joint, or tendon, or shallow heel ulcer without involvement of the calcaneus (i.e., major tissue loss: salvageable with ≥3 digital amputations or standard transmetatarsal amputation [TMA] plus skin coverage).
  
  **Grade 3 Extensive** = extensive deep ulcer or necrosis (gangrene) of the forefoot and/or midfoot with exposed bone, joint or tendon, or full-thickness heel ulcer with or without involvement of the calcaneus (i.e., extensive tissue loss: salvageable only with complex foot reconstruction or nontraditional TMA [e.g., Chopart or Lisfranc amputation])

- **Infection**
  
  0=Grade 0, None, 1=Grade 1, Mild 2=Grade 2, Moderate, 3=Grade 3, Severe

- **Ischemia** gauged by ABI and/or toe pressure
TASC-II recorded by arterial segment
Core vs. Expanded Data Forms:

- Potential to identify core data elements required for key outcomes and risk-adjustment
  - Could be used by sites not interested in research
  - Would reduce data entry requirements
- Would result in less overall data collection
  - Might introduce academic center vs real-world bias
  - Might promote core data entry by sites that would otherwise continue expanded data entry
  - Don’t know important variables without analysis
- Pilot with CEA: Chair Randy DeMartino, chair
Statistical Audits

• Analyzing sites with high risk and low to zero outcomes
  – validate data that might be under-reported, such as complications
• Pilot with oAA: Jeff Indes, MD chair
  – apply the new Bertges model to predict the expected rate of post op MI
  – ask centers who had treated those patients to do an audit of accuracy
Error trapping combination variables

• Determine “data quality rules” based on combinations of variables that are impossible or very unlikely to occur
  – ie, patient with INDICATION=claudication and PREOPAMMBUL=wheelchair
• Pilot with EVAR: Sal Scali, MD chair
  – Scope being determined
Monthly COPI reports:

- One year stroke/mortality after elective CEA/CAS for asymptomatic carotid stenosis
- One year mortality after open AAA/EVAR for elective AAA less than 6cm
- QCDR measures
National QI projects:
Statin/AP therapy
Follow-up imaging after EVAR
Appropriateness of care
Research Advisory Council Update:
Research Advisory Council (RAC) Update:

Approved Project list on line:


42 National Projects

80 Regional Projects

– VSGNE, Carolina’s, Virginia’s and Mid-Atlantic
Research committee objective and goals:

• Our goal is to help assist in the acquisition of datasets for specific research questions.
• Help the centers with study design, application process, etc.
Research Request:

1. Complete/revise application
2. Forward to research committee for review
   - Typically, revisions requested for missing element, incomplete methodology
   - Commonly due to limited familiarity with the dataset
3. Submit to VQI research advisory committee
4. Approval and transfer of dataset

Objective: offer feedback to increase likelihood of success in obtaining dataset
Preparing and submitting a research proposal:

1. Formulate research question
2. Review VSG variables and outcomes (example CEA dataset)
3. Develop RAC proposal (VQI resource library: http://www.vascularqualityinitiative.org/resources)
4. Assemble project team o Analytic roles
   o Consultation roles
   o Supervisory roles
5. Generate mock tables/figures – discuss/edit with project team
6. Complete univariate analysis – discuss – interpret – revise
7. Subsequent/multivariable analysis
8. Circulate populated tables – discuss – interpret – revise
9. Assemble manuscript
Venous Quality Council Update:
IVC Filter Registry

- 3228 procedures
- 56 centers

- **CMS Quality Measure**: Appropriate management of Retrievable IVC filters
Varicose Vein Registry

- 1231 procedures in first six months
- 23 centers contracted
- Focus on vein centers, integrate with vein-specific EMR vendors
  - VeinSpec
  - SonoSoft
  - StreamlineMD
  - MedStreaming
- Includes Quality of Life variables
Varicose Vein Registry

- Collecting procedural and follow-up data (early and late)
- Data on ablation treatments will include:
  - Thermal Radiofrequency Ablation, including ClosureFast™
  - Thermal Laser Ablation
  - Mechanochemical Ablation
  - Chemical Ablation, including Varithena®
  - Embolic Adhesive Ablation, including VenaSeal®
  - Surgical Ablation, including high ligation, stripping, and phlebectomy
SVS Quality Performance and Measures Committee and VQI

BRAD JOHNSON, MD
PROFESSOR OF SURGERY
DIVISION OF VASCULAR SURGERY
What is QPMC function besides dealing with confusion?

- MACRA
- MIPS
- APMs
- PFPMs
- CAHPS
- PQRS
Get Smarter People
MACRA- Medicare Access and CHIP Reauthorization Act of 2015

MIPS Merit-based Incentive Payment System replaces the physician fee schedule (PFS)

APMs- Alternative Payment Models

PFPMs- Physician Focus Payment Models

CAHPS- Consumer Assessment of Healthcare Providers and Systems

PQRS- Physicians Quality Reporting System
QPMC

Scope of Work
Monitor national quality initiatives and implement SVS activities in quality and performance measures for vascular intervention

Charges
- Perform testing of vascular performance measures submitted to NQF and CMS as needed
- Perform required NQF and CMS maintenance on SVS measures and participate in other vascular surgery-related measures maintenance as needed
- Participate in AMA Physician Quality Reporting Initiative process and investigate opportunities for partnership with AMA PQRS
- As needed, interact with Health Policy, Government Relations, and Comparative Effectiveness Committees

- Assess SVS and Committee participation in national quality activities, including:
  - National Quality Forum
  - PQRS
  - AMA PCPI
  - Surgical Quality Alliance
  - Federal Agencies such as CMS, AHRQ, NIH, IOM, FDA, etc.

- Communicate developments in national quality initiatives to SVS members
- Determine SVS positions on legislative/regulatory issues that affect quality initiatives related to vascular surgery
Request for Information Regarding Implementation of the Incentive Merit-based Payment System, Promotion of Alternative Payment Models, and Incentive Payments for Participation in Eligible Alternative Payment Models (43 page request)

- Quality Performance - Reporting Mechanisms Available for Quality Performance Category (Pages 12-13)

  - Should we maintain all PQRS reporting mechanisms noted above under MIPS?
  - Should we maintain the same or similar reporting criteria under MIPS as under the PQRS? What is the appropriate number of measures on which a MIPS EP’s performance should be based?
  - Should we maintain the policy that measures cover a specified number of National Quality Strategy domains?
  - Should we require that certain types of measures be reported? For example, should a minimum number of measures be outcomes-based? Should more weight be assigned to outcomes-based measures?
  - What are the potential barriers to successfully meeting the MIPS quality performance category?
History of Quality Reporting

- Tax Relief and Health Care Act of 2006
  - Instituted PQRI (now PQRS)
  - 1.5% bonus for reporting (ended with 2015, now 1.5% penalty)
- Medicare and Improvement for Patients and Providers Act (2008)
  - PQRS became permanent through 2018
- Health Information Technology for Economic and Clinical Health (2009)
  - EHR’s (meaningful use)
    - Bonus for meeting meaningful use before 2015, Penalty in 2015
Qualified Clinical Data Register Program (QCDR)

- VQI Approved as QCDR for 2015 Reporting to Medicare – PQRS and VBM
- QCDRs will be allowed for 2016 Reporting to report for individuals and GROUPS.
- So real penalty for not reporting quality, large practice – 6% of all Medicare money
- USF Vascular Surgery Medicare Collections last year-$1,750,00 x 6%= $105,000
On April 16, 2015, President Obama signed into law, H.R. 2 the Medicare Access and Chip Reauthorization Act of 2015 (MACRA) – A new era in MD Medicare Payments Begins......

ALSO MARKS THE END OF THE ANNUAL CLIFF IN MEDICARE PHYSICIAN PAYMENTS
Baseline Medicare Payments for MDs

- Repeals the SGR
- Positive Updates for 4.5 Years
  - 0.5 percent for July 2015 – 2019
  - 7/1 Conversion factor increased to $35.9335
- Flat for 2020 through 2025
- For 2026 and beyond...
  - 0.75 percent per year, if participating in APM
  - 0.25 percent for all others
Quality Reporting Till 2019

- PQRS – Continues as is
  - 2% penalty for 2016 – 2018 per year
  - All Penalties based on two year data lag (e.g. 2015 reporting for 2017 penalty)

- VBM – Continues as is
  - 2016 Groups of 10 or more - +/-2%
  - 2017 Groups of 10 or more - +/-4%
  - Groups of 9 or less - +/- 2%
  - 2016 Proposed Rule has same requirements

- Meaningful Use – Continues as is
  - Stage 3 was not delayed
  - Penalties: 2016 – 2%, 2017 – 3%, 2018 – 4%, 2019 – 5%
QPMC Assignments

- * Quality Measure Development
  - o Identify New Measure Opportunities
    - * Work with VQI to develop measure concepts for VQI registry modules that don’t have enough measures by domain
    - * VQI sending list of gaps in measures
    - * QPMC Committee Members to work in teams to identify measure concept and complete measure specifications

Work with M2S for Measures to be Added to VQI QCDR Registry Submission to CMS (October 31/November 2015 – final by January 31, 2016 submission)

  o Complete and Submit Measures to CMS PQRS Program (Summer 2016) for select group
We need the Southeastern Vascular Study Group to provide VQI with accurate data that QPMC can present to CMS so we can all get our MONEY.
Why Participate?

“THE MONEY”

- Quality Improvement Can Lead to a Reduction in Cost
- Medical Device Evaluation Projects i.e. investigational device exemption (IDE) studies of new devices
- Research Projects
- Carotid Artery Stent Facility Recertification
- Build Relationships with Other Centers. We are hosting The Florida/Georgia Regional Meeting at CAMLS Oct 29
Merit Incentive Payment System (MIPS)

- Combined Index – Starts with 2017 Reporting, 2019 Payments
- PQRS, VBM, EHR, Clinical Improvement Activities
- Sliding Scale for bonus and penalty
- Special extra bonus for high performers (2019 – 2024)
- Measures Direct to CMS
- Adding Group Practice Reporting to QCDR
- 2019 - +/- 4%, 2020 - +/-5%, 2021 - +/-7%, 2022 and beyond - +/-9%
- 9% x 1,750,00 = $157,000 bonus for our group
Use VQI to find cost savings otherwise CMS will reduce work RVU values
Please Give Money or You May Lose Money

Pam Phillips
Director, Washington Office
202-787-1220
20 F Street, NW, Suite 301B
Washington, DC 20001-6703
Contact for: Government Relations; Coding and Reimbursement; National Aneurysm Alliance; PAC; Professional Liability Initiatives and Quality Initiatives
PARTICIPATION IN QUALITY REGISTRIES: EFFECT ON QUALITY OF CARE

Yazan Duwayri, MD
10-29-2015
Introduction

- Significant resources are directed to data collection, making it seem that this is the ultimate goal of participation.

- Quality improvement will not occur without accurate data.

- Outcome measurement can be challenging or inaccurate.
Association of Hospital Participation in a Surgical Outcomes Monitoring Program With Inpatient Complications and Mortality

David A. Etzioni, MD, MSHS; Nabil Wasif, MD, MPH; Amylou C. Dueck, PhD; Robert R. Cima, MD; Samuel F. Hohmann, PhD; James M. Naessens, ScD; Amit K. Mathur, MD, MS; Elizabeth B. Habermann, PhD, MPH

Association of Hospital Participation in a Quality Reporting Program with Surgical Outcomes and Expenditures for Medicare Beneficiaries

Nicholas H. Osborne, MD, MS; Lauren H. Nicholas, PhD; Andrew M. Ryan, PhD; Jyothi R. Thumma, MPH, and Justin B. Dimick, MD, MPH
Figure 2. Adjusted Rates of Complications, Serious Complications, and Mortality by Hospital NSQIP Participation and Year

NSQIP, National Surgical Quality Improvement Program. Error bars indicate 95% CIs. Adjusted for patient comorbidity, operation type, age, and sex.
<table>
<thead>
<tr>
<th>Outcomes</th>
<th>Non-NSQIP Hospitals</th>
<th>NSQIP Hospitals</th>
<th>Association With NSQIP Participation, Adjusted Odds Ratio (95% CI)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Complications</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Hospitalizations</td>
<td>172,475</td>
<td>172,882</td>
<td>1.00 (0.97-1.03)</td>
</tr>
<tr>
<td>No. (%) With Outcome</td>
<td>8,569 (5.0)</td>
<td>8,313 (4.8)</td>
<td></td>
</tr>
<tr>
<td>Serious complications</td>
<td>159,418</td>
<td>161,083</td>
<td>0.98 (0.94-1.03)</td>
</tr>
<tr>
<td>No. (%) With Outcome</td>
<td>3,329 (2.1)</td>
<td>3,139 (2.0)</td>
<td></td>
</tr>
<tr>
<td>Mortality</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>No. of Hospitalizations</td>
<td>101,192</td>
<td>99,380</td>
<td>1.04 (0.94-1.14)</td>
</tr>
<tr>
<td>No. (%) With Outcome</td>
<td>9,70 (1.0)</td>
<td>6,65 (0.7)</td>
<td></td>
</tr>
</tbody>
</table>

Abbreviation: NSQIP, National Surgical Quality Improvement Program.

*a Cumulative percentage.

*b The data reported in this column represent the output of the difference-in-difference model. A lower number implies that hospitalizations at NSQIP hospitals improved over time at a faster rate than those at non-NSQIP hospitals. Confidence intervals are adjusted to reflect a Bonferroni adjustment for 3 comparisons. Variables used for risk adjustment in each model include patient age, patient sex, procedure, and patient comorbidity.
No association between participation in the NSQIP and improvements in postoperative outcomes over time.

Surgical outcomes reporting systems do not provide clear mechanisms for quality improvement.
Relative risk of risk-adjusted outcomes in ACS-NSQIP hospitals and Non-ACS-NSQIP matched control hospitals assessed at 1-, 2- and 3- years following enrollment in simple pre-post (ACS-NSQIP hospitals after enrollment vs. before enrollment) and difference-indifference analysis

<table>
<thead>
<tr>
<th>Adverse Outcome</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td>N=430,179 Post-enrollment</td>
<td></td>
<td></td>
<td>N=1,226,497 Post-enrollment</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Mortality</td>
<td>0.92 (0.85, 0.98)</td>
<td>0.76 (0.62, 0.9)</td>
<td>0.79 (0.59, 0.99)</td>
<td>0.96 (0.90, 1.02)</td>
<td>0.94 (0.88, 1.00)</td>
<td>0.96 (0.89, 1.03)</td>
</tr>
<tr>
<td>Serious complications</td>
<td>1.01 (0.97, 1.05)</td>
<td>0.99 (0.88, 1.09)</td>
<td>1.00 (0.86, 1.14)</td>
<td>1.00 (0.96, 1.03)</td>
<td>0.96 (0.93, 1.00)</td>
<td>0.96 (0.91, 1.00)</td>
</tr>
<tr>
<td>Reoperations</td>
<td>1.07 (0.91, 1.22)</td>
<td>1.15 (0.77, 1.53)</td>
<td>1.29 (0.86, 1.73)</td>
<td>1.14 (0.98, 1.31)</td>
<td>1.06 (0.90, 1.22)</td>
<td>0.97 (0.77, 1.16)</td>
</tr>
<tr>
<td>Readmissions</td>
<td>1.06 (1.02, 1.09)</td>
<td>1.12 (1.03, 1.20)</td>
<td>1.16 (1.05, 1.27)</td>
<td>1.04 (1.01, 1.07)</td>
<td>1.00 (0.97, 1.03)</td>
<td>0.99 (0.96, 1.03)</td>
</tr>
</tbody>
</table>

* All models are adjusted for patient characteristics, comorbidities, year of surgery, procedure type, and hospital characteristics.
## Difference in Average Medicare Payments in NSQIP Hospitals vs. Non-ACS-NSQIP Control Hospitals After Enrollment (95% CI)*

N=1,226,497

<table>
<thead>
<tr>
<th></th>
<th>Year 1</th>
<th>Year 2</th>
<th>Year 3</th>
</tr>
</thead>
<tbody>
<tr>
<td>Total payments, mean</td>
<td>$166 (-78,410)</td>
<td>$180 (-88,449)</td>
<td>$40 (-268,348)</td>
</tr>
<tr>
<td>Payments for index admission, mean</td>
<td>$54 (-163,272)</td>
<td>$123 (-103,349)</td>
<td>$-11 (-278,257)</td>
</tr>
<tr>
<td>Payments for readmissions</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% with readmission</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment, mean</td>
<td>$95 (-405,596)</td>
<td>$201 (-339,740)</td>
<td>$245 (-231,721)</td>
</tr>
<tr>
<td>Payments for outliers</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>% with outlier payment</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Payment, mean</td>
<td>$454 (-961,1868)</td>
<td>$1459 (-48,2965)</td>
<td>$-86 (-1666, 1495)</td>
</tr>
</tbody>
</table>

* All models are adjusted for patient characteristics.
1. With time, hospitals had progressively better surgical outcomes
2. enrollment in a national quality reporting program was not associated with the improved outcomes or lower Medicare payments among surgical patients.

Feedback on outcomes alone may not be sufficient
Improved Surgical Outcomes for ACS NSQIP Hospitals Over Time

Evaluation of Hospital Cohorts With up to 8 Years of Participation

Mark E. Cohen, PhD,* Yaoming Liu, PhD,* Clifford Y. Ko, MD, MS, MSHS, FACS,††
and Bruce L. Hall, MD, PhD, MBA, FACS*††

Annals of Surgery, 2015
FIGURE 4. Mean differences in O/E ratios as a function of years in ACS NSQIP for mortality, morbidity, and SSI.
- methodology cannot segregate the influence of participation from “everything else”

- Beneficial cultural carryover effect of ACS NSQIP to nonparticipating hospitals is also difficult to isolate

- non-participating hospitals cannot provide the type of clinical data needed for an analysis of scale and duration
Reliability of Risk-adjusted Outcomes for Profiling Hospital Surgical Quality

Robert W Krell, MD¹, Ahmed Hozain, BS², Lillian S Kao, MD MS³, and Justin B Dimick, MD,
OBJECTIVE—To determine the reliability of risk-adjusted morbidity and mortality for hospital performance profiling using clinical registry data.

- quantification of the proportion of performance variation explained by true quality differences (statistical ‘signal’)
- differences attributable to measurement error
- all differences attributable to quality

RESULTS—reliability depended on:

1. sample size
2. event rate

- Most commonly reported outcome measures have low reliability for differentiating hospital performance
Figure 1.
Average reliability of risk-adjusted 30-day outcomes by hospital caseload tertile and procedure type. A: Mortality; B: Severe morbidity; C: Any morbidity. Dark bars: low caseload; Middle bars: medium caseload; Light bars: high caseload.
Similar to the need for sufficient sample size and large enough treatment effect to have adequate power in a clinical trial, hospital outcomes measurements require both large enough caseloads and frequent enough adverse event rates to reliably capture quality differences.
Systematic review and meta-analysis of the effect of the World Health Organization surgical safety checklist on postoperative complications

J. Bergs¹, J. Hellings², I. Cleemput¹, Ö. Zurel¹, V. De Troyer³, M. Van Hiel⁵, J.-L. Demeere⁴, D. Claeyš⁶ and D. Vandijck¹,⁷
Fig. 2 Forest plot showing the effectiveness of the World Health Organization surgical safety checklist in reducing any complication. A random-effects model was used for meta-analysis. Risk ratios are shown with 95 per cent confidence intervals.
Fig. 3 Forest plot showing the effectiveness of the World Health Organization surgical safety checklist in reducing mortality. A random-effects model was used for meta-analysis. Risk ratios are shown with 95 per cent confidence intervals.
Fig. 4 Forest plot showing the effectiveness of the World Health Organization surgical safety checklist in reducing surgical-site infection. A random-effects model was used for meta-analysis. Risk ratios are shown with 95 per cent confidence intervals.
- supportive of a reduction in postoperative complications and mortality following implementation of the WHO SSC

- cannot be regarded as definitive in the absence of higher-quality studies
Original Investigation
A Checklist-Based Intervention to Improve Surgical Outcomes in Michigan Evaluation of the Keystone Surgery Program
Bradley N. Reames, MD, MS; Robert W. Krell, MD; Darrell A. Campbell Jr, MD; Justin B. Dimick, MD, MPH

<table>
<thead>
<tr>
<th>Intervention Component</th>
<th>Content</th>
<th>Program Support</th>
</tr>
</thead>
<tbody>
<tr>
<td>Evidence-based practice(^{22}) Checklist tool describing SCIP</td>
<td>6 SCIP processes: INF-1: Prophylactic antibiotic selection(^{2}) INF-2: Prophylactic antibiotic timing INF-3: Prophylactic antibiotic discontinuation INF-4: Glucose control INF-6: Appropriate hair removal INF-7: Temperature control</td>
<td>Educational materials provided Routine briefings and debriefings among surgical teams encouraged Principles of safety science enforced</td>
</tr>
</tbody>
</table>
Figure. Adjusted Rates of Adverse Outcomes in Keystone Hospitals Before and After Implementation of the Keystone Surgery Program

Comparison of adjusted rates of adverse outcomes in Keystone hospitals before and after implementation of the Keystone Surgery Program.

Table 4. Adjusted Odds of Adverse Outcomes Before and After Keystone Surgery Implementation

<table>
<thead>
<tr>
<th>Adverse Outcome</th>
<th>Pre-Post Analysis (Keystone Hospitals)</th>
<th>Difference-in-Differences Analysis (Entire Study Cohort)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Superficial SSI</td>
<td>1.02 (0.76-1.36)</td>
<td>1.06 (0.77-1.46)</td>
</tr>
<tr>
<td>Any wound complication</td>
<td>1.12 (0.90-1.40)</td>
<td>1.19 (0.95-1.50)</td>
</tr>
<tr>
<td>Any complication</td>
<td>1.09 (0.94-1.27)</td>
<td>1.10 (0.89-1.36)</td>
</tr>
<tr>
<td>30-d Mortality</td>
<td>0.88 (0.68-1.14)</td>
<td>0.84 (0.58-1.21)</td>
</tr>
</tbody>
</table>
- Failure of: evidence or implementation.
- Essential that researchers assess clinical effectiveness before broad dissemination.
- This study illustrates that success of a program in one clinical context may not translate to others.
Conclusion

- The effectiveness of a surgical quality registry depends on the accuracy collected data. We have to accept that accurate data collection can be resource intensive.

- Reliability of selected outcome measures is essential for consistency.

- Participation in a quality registry should also provide a mechanism for utilization of data in QI projects.

- Clinical effectiveness of quality measures should be carefully assessed before wide implementation.

- Emphasis should move from process implementation, which is the current focus of QI projects, to outcome improvement.
Smoking Cessation for the Vascular Specialist

Kathy L. Nichols, MS, CHES, CTTS
Associate Director
UF AHEC Program

Barbara E. Richardson, PhD, RN, TTS
Program Director
UF AHEC Program
Current use of cigarettes varies by gender, age group, ethnicity, education level, poverty status, disability/limitation status, sexual orientation, and region of the country.

Those living in rural areas have higher tobacco use.

- 27.8 percent of rural residents smoke, compared to 22.7 percent of urban dwellers.
- Rural young adults ages 18 to 34 smoke at especially high rates, and are 27 percent more likely to smoke than their urban counterparts. (ALA, Cutting Tobaccos Rural Roots)

Although current smoking has declined from 20.9% of adults in 2005 to 17.8% in 2013, it remains as the leading cause of preventable disease and death in the U.S.

Cigarette smoking accounts for more than 480,000 deaths (1 of every 5 deaths) every year and more than 16 million Americans live with a smoking-related disease.
The Role of Health Care Providers in Tobacco Control

- Health professionals include physicians, nurses, midwives, dentists, psychologists, psychiatrists, pharmacists, chiropractors and other health-related professionals.

- The role and image of the health professional are essential in promoting tobacco-free lifestyles and cultures.

- Through their professional activities, health professionals can help people by giving advice, guidance and answers to questions related to tobacco use and its health effects.

- They can serve as a reference for the media, educating the public and policy-makers.

- They can also have an impact at national and international levels through their associations in influencing policy change for better tobacco control.

(Work Health Organization, 2005)
Ten Key Recommendations:

1. Tobacco dependence is a chronic condition typically requiring repeated intervention, but for which there are effective treatments.
2. Clinicians and health care delivery systems must consistently identify, document, and treat tobacco use in patients.
3. Clinicians should encourage EVERY patient willing to make a quit attempt to use recommended counseling treatments and medications.
4. Clinicians should offer every tobacco-using patient at a minimum the brief interventions recommended in the Guideline.
Ten Key Recommendations:

5. Individual, group, and telephone counseling are effective; effectiveness improves with intensity, and these two components are particularly beneficial:
   - Practical counseling (problem solving/skills training)
   - Social support integrated into treatment

6. Clinicians should encourage the use of effective medications except when contraindicated.

7. Clinicians should encourage patients who are making a quit attempt to use both counseling and medication in combination.
Ten Key Recommendations:

8. Clinicians and health care delivery systems should promote quitlines.

9. Clinicians should use the recommended motivational techniques when a tobacco user is not willing to make a quit attempt.

10. Insurers and purchasers should ensure insurance plans include as covered benefits counseling and medication recommended in the Guideline.
## 5 A’s Model for Treating Tobacco Use and Dependence

<table>
<thead>
<tr>
<th>5A’s Step</th>
<th>Comments</th>
</tr>
</thead>
<tbody>
<tr>
<td>**1. **ASK <strong>about tobacco use</strong></td>
<td>“Do you use any tobacco products?”</td>
</tr>
<tr>
<td><strong>2. ADVISE to quit</strong></td>
<td>In a clear, strong, and personalized manner, urge <strong>every</strong> tobacco user to quit</td>
</tr>
<tr>
<td><strong>3. ASSESS willingness to make a quit attempt</strong></td>
<td>“Are you willing to give quitting a try?”</td>
</tr>
</tbody>
</table>
| **4. ASSIST in a quit attempt** | If willing: offer medication, provide or refer for counseling   
If not willing: provide interventions to increase future quit attempts |
| **5. ARRANGE follow-up.** | If willing: arrange follow-up contact within 1 week post quit date  
If not willing: address at next clinic visit |
Stages of Change

Pre-Contemplation
Not thinking about smoking

Contemplation
Thinking about quitting

Preparation
Preparing to stop

I May

I Will

Action
Attempting to stop

Relapsing back to using tobacco

I Am

I Did!

I Still Am

Maintenance
Staying stopped

Termination
Tobacco free

Adapted from Prochaska et al.
Common Roadblocks to Change

- **Lack of confidence**
  - Past “failures”
  - Critical family/friends/clinicians

- **Ambivalence regarding the importance of the change**
  - Difficulty choosing between present comfort and long-term health/happiness

- **Feeling unprepared to make a change**
  - No plan
  - No access to adequate resources
  - Lack of social support
Motivational Interviewing is:

- collaborative
- a patient-centered form of “guiding”
- focused on eliciting and strengthening the patient’s *personal* motivation for change
Patients are ambivalent about making changes

When the clinician advocates for change, it will evoke “resistance” from the patient

Resistance predicts lack of change

Getting the patient to talk about making the change makes it more likely that s/he will do it
Effective Communication with People Who Want to Quit

- The successful quit attempt is based on the readiness of the person who wants to quit.
- Help the individual think about how much of a problem his/her current behavior is for in relation to other issues in life.
- Express empathy and support the individual’s self-efficacy.
- Establish trust and openness with the individual and focus on his/her needs.
- Motivation for change can be fostered by an accepting, empowering and safe atmosphere.
- Listen to the person in a supportive, reflective manner and demonstrate that you understand his/her feelings and concerns.
“We are usually convinced more easily by reasons we have found ourselves than by those which have occurred to others”

- *Pascal (1623-1662)*
Because providers typically are quite busy and often don’t feel they have the time and/or expertise to do an intensive cessation intervention with patients, we give them an option of using 2 A’s and an R:

- Ask
- Advise
- Refer
For the “Refer” part of this model, the patient is given information about cessation services that are available to him/her.

- Free In-Person Counseling and Nicotine Replacement Therapy (as medically appropriate and supplies last)
- Free Phone or Online Counseling and Nicotine Replacement Therapy (as medically appropriate and supplies last)
Established in 2007 and has completed over seven years of offering services throughout the state.

Current annual legislative appropriation of nearly $13 million

Florida AHECs include AHEC Programs at the University of Florida, University of Miami, University of South Florida, Nova Southeastern University, and Florida State University, and their 10 affiliated regional Centers.

Provides tobacco cessation services in all 67 counties and training for current and future health professionals to prepare them to treat tobacco dependency in a myriad of clinical and community settings.
AHEC is dedicated to serving our communities by increasing tobacco cessation counseling opportunities and increasing tobacco cessation awareness.

The ONLY way to do this is through our partnerships with health departments, hospitals, clinics, academic institutions, etc.

AHEC offers single-session and multiple-session programs that provide FREE in-person group cessation counseling geared to those 18 years and older. AHEC is the local in-person option of Tobacco Free Florida’s 3 Free & Easy Ways to Quit.

Sessions provide participants with the knowledge, techniques, and support necessary to quit using tobacco.

Nicotine Replacement Therapy is provided to participants based on their daily tobacco use.
Two Types:

- Nicotine Replacement Therapy
  - Patch
  - Lozenge
  - Gum
  - Inhaler
  - Nasal Spray

- Non-Nicotine-Containing Medications
  - Bupropion (Zyban)
  - Varenicline (Chantix)
1. Implement a tobacco-user identification system in every clinic.

2. Provide education, resources, and feedback to promote provider intervention.

3. Dedicate staff to provide tobacco dependence treatment and assess its delivery in staff performance evaluations.

4. Promote hospital policies that support and provide inpatient tobacco dependence services.

5. Include tobacco dependence treatments (both counseling and medication) identified as effective in the guideline, as paid or covered services in all subscribers or members of health insurance packages.
Smoking Cessation Counseling Videos

- Ineffective Counseling:
  - https://www.youtube.com/watch?v=80XyN E89eCs

- Effective Counseling:
  - https://www.youtube.com/watch?v=URiKA 7CKtfc
Thank you!
Cardiac Risk Assessment Models in the VQI

8th Bi-annual Meeting Southeastern Vascular Study Group

10.29.2015

Salvatore T. Scali, M.D.
University of Florida
Disclosures

• None
Introduction

- >1.5 million vascular operations/year in the U.S.

- Perioperative MI is a major cause of morbidity and mortality in non-cardiac surgery patients
  - Rate 1-5%
  - Up to 30% in selected vascular operations
  - Mortality rate - *up to 60% per event*
Cardiac Risk Assessment

- Postoperative MI (POMI) incidence is 3-17% → even higher with pre-existent CAD
- Risk stratification techniques:
  - eyeball test, initial H&P
  - ECG, TTE, stress testing
  - medicine (cardiology) consultation*
- Prediction Models
Cardiac Risk Indices

- **Goldman Index**

- **Revised Cardiac Risk Index (RCRI)***
  - *Lee et al. Derivation and validation of a simple index for prediction of cardiac risk of major noncardiac surgery Circulation 1999 [21% patients = vascular]*

- **Detsky et. al.**
  - *Predicting cardiac complications in non-cardiac surgery patients. J Gen Intern Med. 1986 [10% patients = vascular]*

- **Welten et. al.**
  - *Influence of aging on prognostic value of the RCRI for postoperative complications in vascular surgery patients. Eur J. Vasc Endovasc Surg 2007*

- **ACS NSQIP**
  - *Gupta et. al. Development and Validation of a risk calculator for prediction of cardiac risk after surgery. Circulation 2011 [9% patients = vascular]*
Low risk: ~0-3%  Intermediate risk: ~4-7%  High risk: ~8-11%
### Reported Cardiovascular Outcomes in Studies of Cardiovascular Risk Factors

<table>
<thead>
<tr>
<th>Outcome</th>
<th>Goldman</th>
<th>Detsky</th>
<th>Lee</th>
<th>Welten</th>
<th>NSQIP</th>
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</thead>
<tbody>
<tr>
<td>Cardiac death</td>
<td>x</td>
<td>x</td>
<td></td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Non-fatal MI</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>CHF</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
<td>x</td>
</tr>
<tr>
<td>Vtach</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>(x)</td>
</tr>
<tr>
<td>Vfib</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>(x)</td>
</tr>
<tr>
<td>Cardiac arrest</td>
<td></td>
<td></td>
<td>x</td>
<td></td>
<td>x</td>
</tr>
<tr>
<td>3º Heart block</td>
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<td></td>
<td></td>
<td>x</td>
<td></td>
</tr>
<tr>
<td>Coronary revascularization</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td>x</td>
</tr>
</tbody>
</table>

Different risk indices predict different outcomes!
RCRI consistently significantly underestimates risk of cardiac complications for multiple routine vascular surgery operations
The Vascular Study Group of New England Cardiac Risk Index (VSG-CRI) predicts cardiac complications more accurately than the Revised Cardiac Risk Index in vascular surgery patients

Daniel J. Bertges, MD, RVT, a Philip P. Goodney, MD, b Yuanyuan Zhao, MD, b Andres Schanzer, MD, c Brian W. Nolan, MD, b Donald S. Likosky, PhD, b Jens Eldrup-Jørgensen, MD, d and Jack L. Cronenwett, MD, b for the Vascular Study Group of New England, Burlington, VT; Lebanon, NH; Worcester, Mass; and Portland, ME

Step 1:
Calculate VSG-RCI Score

<table>
<thead>
<tr>
<th>VSG-CRI Risk Factors</th>
<th># Points</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age ≥ 80</td>
<td>4</td>
</tr>
<tr>
<td>Age 70-79</td>
<td>3</td>
</tr>
<tr>
<td>Age 60-69</td>
<td>2</td>
</tr>
<tr>
<td>CAD</td>
<td>2</td>
</tr>
<tr>
<td>CHF</td>
<td>2</td>
</tr>
<tr>
<td>COPD</td>
<td>2</td>
</tr>
<tr>
<td>Creatinine &gt; 1.8</td>
<td>2</td>
</tr>
<tr>
<td>Smoking</td>
<td>1</td>
</tr>
<tr>
<td>Insulin Dependant Diabetes</td>
<td>1</td>
</tr>
<tr>
<td>Long term β-Blockade</td>
<td>1</td>
</tr>
<tr>
<td>History of CABG or PCI</td>
<td>-1</td>
</tr>
</tbody>
</table>

Step 2:
Use VSG-CRI Score To Predict Risk of Adverse Cardiac Outcome

Example patient: 80 yr-old smoker with history of CAD and prior CABG.
VSG-CRI score = 4 + 1 + 2 -1 = 6
VQI Cardiac Risk Calculator

- http://www.qxmd.com/calculate-online/vascular-surgery
So why do other prediction models perform so poorly?

- Predict different outcomes
- Imprecision of comorbidity and end-point definitions
- Statistical flaws in model derivation
- Lack of time consideration (e.g. comorbidity, procedure, region)
So why do other prediction models perform so poorly?

• Predict different outcomes

• Imprecision of comorbidity and end-point definitions

• Statistical flaws in model derivation

• Lack of time consideration (e.g. comorbidity, procedure, region)
• Pitfall: single data sampling event suffices to predict future events
• However, intraoperative & postoperative events influence outcome risk
• Elective Clinical prediction tool optimally accounts for preoperative and some intraoperative factors
Impact of Time on Preop Risk Factors

Congestive heart failure

Diabetes mellitus
Impact of Procedure Type on POMI

Steely et. al. Regional Variation in POMI in the VQI

Unpublished data
VQI Regional Variation in Postop MI

Unpublished data
VQI CRI Project

D Bertges, D Neal, A Schanzer, Scali S, P Goodney, J Eldrup-Jorgensen, J Cronenwett

-Sought to develop and validate a new VQI CRI for POMI prediction

43,433 elective operations

- CEA = 20,437
- Infrainguinal bypass = 7,514
- Suprainguinal bypass = 1,406
- Endovascular AAA repair = 8,239
- Open AAA repair = 3,587

-Unpublished data

-Created an ‘All Procedure Model’ as well as Procedure Specific Models

All Procedure Model: AUC = 0.76
Procedure Specific Model AUCs:
  - CEA 0.73, INFRA 0.75, EVAR 0.75, OAAA 0.75
## All Procedure Model with Cumulative AUC

<table>
<thead>
<tr>
<th>Variable in model</th>
<th>Number of times selected</th>
<th>Cumulative AUC</th>
<th>OR (95% CI)*</th>
</tr>
</thead>
<tbody>
<tr>
<td>Age, ≥60</td>
<td>100</td>
<td>.57</td>
<td>2.1 (1.5-2.9)</td>
</tr>
<tr>
<td>Any prior vascular surgery</td>
<td>100</td>
<td>.62</td>
<td>1.8 (1.5-2.2)</td>
</tr>
<tr>
<td>CAD, unstable angina or MI within 6 months</td>
<td>100</td>
<td>.65</td>
<td>2.1 (1.4-3.2)</td>
</tr>
<tr>
<td>Insulin dependent diabetes</td>
<td>100</td>
<td>.67</td>
<td>1.6 (1.3-1.9)</td>
</tr>
<tr>
<td>Procedure (all others vs. CEA)</td>
<td>100</td>
<td>.73</td>
<td>2.2 (1.8-2.7)</td>
</tr>
<tr>
<td>Creatinine &gt;1.78</td>
<td>99</td>
<td>.74</td>
<td>2.0 (1.6-2.7)</td>
</tr>
<tr>
<td>Stress test, abnormal vs. normal/not done</td>
<td>99</td>
<td>.74</td>
<td>1.8 (1.4-2.2)</td>
</tr>
<tr>
<td>BMI, &lt;24</td>
<td>99</td>
<td>.75</td>
<td>1.4 (1.2-1.70)</td>
</tr>
<tr>
<td>CHF</td>
<td>94</td>
<td>.75</td>
<td>1.8 (1.4-2.3)</td>
</tr>
</tbody>
</table>

*Unpublished data*
Comparison of Risk Factors across 4 Operations

<table>
<thead>
<tr>
<th>Variable in model</th>
<th>CEA</th>
<th>INFRA</th>
<th>EVAR</th>
<th>OAAA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Crea &gt;1.8 mg/dl</td>
<td>2.3 (1.4-3.7)</td>
<td>1.7 (1.1-2.7)</td>
<td>2.4 (1.4-4.2)</td>
<td>3.2 (1.9-5.1)</td>
</tr>
<tr>
<td>Age</td>
<td>2.3 (1.2-4.5)</td>
<td>2.4 (1.6-3.7)</td>
<td>1.5 (0.9-2.6)</td>
<td></td>
</tr>
<tr>
<td>CAD</td>
<td>1.4 (1.0-2.0)</td>
<td>2.1 (1.5-2.8)</td>
<td>2.6 (1.5-4.4)</td>
<td></td>
</tr>
<tr>
<td>Diabetes</td>
<td>1.3 (0.9-1.8)</td>
<td>1.4 (1.0-2.0)</td>
<td>1.3 (0.8-2.3)</td>
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<tr>
<td>Prior vascular procedure</td>
<td>1.8 (1.4-2.5)</td>
<td></td>
<td></td>
<td>1.6 (1.1-2.5)</td>
</tr>
<tr>
<td>CHF</td>
<td>1.5 (1.0-2.2)</td>
<td></td>
<td>2.4 (1.2-4.8)</td>
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<tr>
<td>Urgent procedure</td>
<td>1.4 (1.0-2.1)</td>
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<td>1.8 (1.0-3.0)</td>
<td></td>
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<tr>
<td>BMI, &lt;24</td>
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<td>1.8 (1.1-3.1)</td>
<td>1.7 (1.2-2.4)</td>
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<tr>
<td>Prior CABG or PCI</td>
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<td>1.6 (1.1-2.4)</td>
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<tr>
<td>COPD</td>
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<td>1.3 (0.8-2.0)</td>
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<td>Smoking</td>
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<td>1.7 (1.0-2.9)</td>
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<td>Stress test status</td>
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<tr>
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<td>0.6 (0.4-0.9)</td>
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</tr>
<tr>
<td>HTN</td>
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<td>2.2 (1.1-4.8)</td>
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<tr>
<td>Indication: critical limb</td>
<td>NA</td>
<td>1.6 (1.6-3.6)</td>
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<td>1.4 (NA)</td>
</tr>
<tr>
<td>ischemia*</td>
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<tr>
<td>Graft recipient,</td>
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<tr>
<td>infrapopliteal</td>
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</tr>
<tr>
<td>Aortic clamp position,</td>
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<td>NA</td>
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<tr>
<td>proximal: suprarenal</td>
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<tr>
<td>Distal: iliac/femoral</td>
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<td>AUC derivation</td>
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<td>AUC, validation</td>
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<td>.75</td>
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<td>boot-strapped</td>
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Unpublished data
Comparison of Risk Factors across 4 Operations

<table>
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<tr>
<th>Variable in model</th>
<th>CEA</th>
<th>INFRA</th>
<th>EVAR</th>
<th>OAAA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creatinine &gt;1.8 mg/dl</td>
<td>2.3 (1.4-3.7)</td>
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<td>2.4 (1.4-4.2)</td>
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<td>1.4 (1.0-2.0)</td>
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<td>Prior vascular procedure</td>
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<td></td>
<td>1.6 (1.1-2.5)</td>
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<tr>
<td>CHF</td>
<td>1.5 (1.0-2.2)</td>
<td>2.4 (1.2-4.8)</td>
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</tr>
<tr>
<td>Urgent procedure</td>
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<td>BMI, &lt;24</td>
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<td>COPD</td>
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<td>1.3 (0.8-2.0)</td>
<td>2.0 (1.4-2.7)</td>
<td></td>
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<tr>
<td>Smoking</td>
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<td>0.6 (0.4-0.9)</td>
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<td>1.4 (0.7-2.7)</td>
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<tr>
<td>HTN</td>
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<td>2.2 (1.1-4.8)</td>
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<tr>
<td>Indication: critical limb ischemia*</td>
<td>NA</td>
<td>1.6 (1.6-3.6)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Graft recipient, infrapopliteal</td>
<td>NA</td>
<td>1.5 (1.1-2.0)</td>
<td>NA</td>
<td>NA</td>
</tr>
<tr>
<td>Aortic clamp position, proximal: suprarenal</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td>1.4 (0.9-2.0)</td>
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<tr>
<td>Distal: iliac/femoral</td>
<td>NA</td>
<td>NA</td>
<td>NA</td>
<td></td>
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<tr>
<td>Max AAA diameter</td>
<td>NA</td>
<td>NA</td>
<td>1.6 (1.0-2.7)</td>
<td></td>
</tr>
<tr>
<td>AUC derivation</td>
<td>.73</td>
<td>.76</td>
<td>.75</td>
<td>.75</td>
</tr>
<tr>
<td>AUC, validation boot-strapped</td>
<td>.73</td>
<td>.76</td>
<td>.75</td>
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</table>

Unpublished data
Comparison of Risk Factors across 4 Operations

<table>
<thead>
<tr>
<th>Variable in model</th>
<th>CEA</th>
<th>INFRA</th>
<th>EVAR</th>
<th>OAAA</th>
</tr>
</thead>
<tbody>
<tr>
<td>Creatinine &gt;1.8 mg/dl</td>
<td>2.3 (1.4-3.7)</td>
<td>1.7 (1.1-2.7)</td>
<td>2.4 (1.4-4.2)</td>
<td>3.2 (1.9-5.1)</td>
</tr>
<tr>
<td>Age*</td>
<td>2.3 (1.2-4.5)</td>
<td>2.4 (1.6-3.7)</td>
<td>1.5 (0.9-2.6)</td>
<td></td>
</tr>
<tr>
<td>CAD</td>
<td>1.4 (1.0-2.0)</td>
<td>2.1 (1.5-2.8)</td>
<td>2.6 (1.5-4.4)</td>
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</tr>
<tr>
<td>Diabetes</td>
<td>1.3 (0.9-1.8)</td>
<td>1.4 (1.0-2.0)</td>
<td>1.3 (0.8-2.3)</td>
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<tr>
<td>Prior vascular procedure</td>
<td>1.8 (1.4-2.5)</td>
<td></td>
<td></td>
<td>1.6 (1.1-2.5)</td>
</tr>
<tr>
<td>CHF</td>
<td>1.5 (1.0-2.2)</td>
<td></td>
<td>2.4 (1.2-4.8)</td>
<td></td>
</tr>
<tr>
<td>Urgent procedure</td>
<td>1.4 (1.0-2.1)</td>
<td></td>
<td>1.8 (1.0-3.0)</td>
<td></td>
</tr>
<tr>
<td>BMI, &lt;24</td>
<td></td>
<td>1.8 (1.1-3.1)</td>
<td>1.7 (1.2-2.4)</td>
<td></td>
</tr>
<tr>
<td>Prior CABG or PCI</td>
<td></td>
<td>1.4 (1.0-1.9)</td>
<td>0.7 (0.4-1.3)</td>
<td>1.6 (1.1-2.4)</td>
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<td>COPD</td>
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<td>2.0 (1.4-2.7)</td>
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<td>Smoking°</td>
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<td>Stress test status°</td>
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<td></td>
<td>1.1 (0.8-1.5)</td>
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<td>Race, non-white</td>
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<td>0.6 (0.4-0.9)</td>
<td></td>
<td>1.4 (0.7-2.7)</td>
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<tr>
<td>HTN</td>
<td></td>
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<tr>
<td>Indication: critical limb ischemia*</td>
<td>NA</td>
<td>1.6 (1.6-3.6)</td>
<td>NA</td>
<td>NA</td>
</tr>
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<tr>
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<td>.73</td>
<td>.76</td>
<td>.75</td>
<td>.75</td>
</tr>
</tbody>
</table>

Unpublished data
VQI-CRI

Unpublished data
Conclusions

• POMI is an important cause of postoperative morbidity and mortality in vascular surgery patients
• Cardiac risk indices derived from non-VQI data is not as reliable as VQI generated models
• VQI-CRI can be a useful and valid clinical decision making tool to predict POMI after vascular surgery
• Procedure-specific models improve accuracy when they include unique risk factors
Thank you

Go GATORS!

NIH-NHLBI 5K23HL115673-02
SVS Lifeline Award
The quality of our quality measures: PQRS measures and their ability to determine quality of care.

Rodney Bensley, MD

Southeastern VSG Fall 2015 Meeting
Tampa, FL
October 29, 2015
Disclosures

None Relevant
Quality

1. Who is defining quality?

2. What is their definition of quality?
Quality

1. Who is defining quality?
   CMS/PQRS

2. What is their definition of quality?
Background

• Physician Quality Reporting System (PQRS)
  – CMS program
  – Attempts to measure quality of care
  – Links reporting of data to reimbursement

** Reporting of data only **
PQRS reimbursements

- 2010 → 2% incentive
- 2011 → 1% incentive
- 2012 → 0.5% incentive
- 2013 → 0.5% incentive
- 2014 → 0.5% incentive
- 2015 → 1.5% penalty
- 2016 → 2.0% penalty
Measures studied

Asymptomatic small AAA

1. Open / Endovascular repairs
2. Asymptomatic / Elective
3. Men < 6.0 cm
4. Women < 5.5 cm
Measures studied

Asymptomatic carotid occlusive disease

1. CEA / Carotid stent
2. Asymptomatic / Elective
Quality

1. Who is defining quality?
   CMS/PQRS

2. What is their definition of quality?
   - Open AAA: discharge home by POD7
   - EVAR: discharge home by POD2
   - CEA: discharge home by POD2
   - CAS: discharge home by POD2
Meeting the quality measure

1. Discharge disposition to home

2. Length of stay
   - Open AAA < 7 days
   - EVAR < 2 days
   - CEA < 2 days
   - CAS < 2 days
Why should we care?

- Our quality of care is being measured. Is the metric appropriate?
- Reimbursement
- Can we improve patient selection for prophylactic operations?
Do PQRS measures accurately measure quality of care for treatment of asymptomatic small AAA and asymptomatic carotid occlusive disease?
Assumption

Patients should be expected to have good 1-year survival after prophylactic operations.
Methods

• SVS VQI database
• Outcomes
  1. How often were measures met
  2. Why measures were not met
  3. Difference in complications
  4. Difference in 30-day mortality
  5. Difference in 1-year mortality
Open AAA

2191 – prophylactic open AAA repair

** Meeting measure = discharge home by POD7 **

- Meeting measure: 60%
- Not meeting measure: 40%
Not meeting measure
Open AAA

- 86% discharge > 7 days
- 43% discharge not to home
EVAR

9619 - prophylactic EVAR

Meeting measure = discharge home by POD2

78% (Meeting measure) vs. 22% (Not meeting measure)
Not meeting measure
EVAR

- 96% discharge > 2 days
- 21% discharge not to home
Carotid Endarterectomy

27,953 – prophylactic CEA

** Meeting measure = discharge home by POD2 **
Not meeting measure
Carotid Endarterectomy

- 94% discharge > 2 days
- 24% discharge not to home
Carotid Stent

3423 – prophylactic carotid stent

87% Meeting measure
13% Not meeting measure

** Meeting measure = discharge home by POD2 **
Not meeting measure Carotid Stent

- 92% discharge > 2 days
- 29% discharge not to home
30-day Mortality

Not meeting PQRS measures

Meeting PQRS measures

EVAR
oAAA
CAS
CEA
1-year Mortality with complications

Not meeting PQRS measures

Meeting PQRS measures

EVAR
oAAA
CAS
CEA
All patients with post-operative complications are excluded.
1-year Mortality without complications

![Bar chart showing 1-year mortality rates for different procedures.](chart.png)
Summary

Failure to meet PQRS Measures

• Higher rate of postoperative complications

• Higher 30-day mortality rate

• Higher 1-year mortality rate.
Summary

• When excluding complications, patients with a prolonged length of stay and discharge disposition other than home have greater 1-year mortality.
Conclusion

Proper patient selection is required to avoid complications and unhelpful procedures.

PQRS measures (as defined by CMS) appear appropriate for comparing care across centers.
ICD-10 for the Vascular Surgeon

Ginger L. Manos, M.D.
Artery and Vein Specialists of the Emerald Coast, Inc.
Tenants of 10

- ICD-10 International standard
- Learn the concept
- Physician documentation correlation with ICD-10
- Mapping can lead to incorrect ICD-10 codes
- Communicate directly with coders
- Beware of 1 year “grace” period
How ICD-10 Utilized

- Claim submission for payment
- Risk stratification
- CMS quality based payment model
- Compares physician outcomes among peers
ICD-10 Composition

- **Tabular List**
  - Divided into chapters based on body systems or conditions
    - CKI Stage 3
  - Signs and symptoms
    - Right foot pain
    - Left foot ulcer
  - Laboratory findings
    - Lower extremity chronic total occlusion
  - External factors influencing health status
    - Tobacco dependence
ICD-10 Composition

• **Categories**
  • Always 3 characters
  • Example: I10 - Atherosclerosis

• **Subcategories**
  • Each level of subdivision of a category
  • 4 or 5 characters
  • Example: I70.0 Atherosclerosis of aorta

• **Codes**
  • Range from 3-7 characters
  • Example: I10, 170.211 - Atherosclerosis of native arteries with intermittent claudication, right leg
Mechanical Complication of Other Vascular graft (T82.3)

- Complication
- Vascular graft
- Type of complication (breakdown)
- Type of device (carotid, fem bypass)

T82.3

- Category
- Etiology, Anatomic Site, Severity
- Extension

A, D, or S
ICD-10-CM TABULAR LIST of DISEASES and INJURIES

Table of Contents

1. Certain infectious and parasitic diseases (A00-B99)
2. Neoplasms (C00-D49)
3. Diseases of the blood and blood-forming organs and certain disorders involving the immune mechanism (D50-D89)
4. Endocrine, nutritional and metabolic diseases (E00-E89)
5. Mental, Behavioral and Neurodevelopmental disorders (F01-F99)
6. Diseases of the nervous system (G00-G99)
7. Diseases of the eye and adnexa (H00-H59)
8. Diseases of the ear and mastoid process (H60-H95)
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12. Diseases of the skin and subcutaneous tissue (L00-L99)
13. Diseases of the musculoskeletal system and connective tissue (M00-M99)
14. Diseases of the genitourinary system (N00-N99)
15. Pregnancy, childbirth and the puerperium (O00-O9A)
16. Certain conditions originating in the perinatal period (P00-P96)
17. Congenital malformations, deformations and chromosomal abnormalities (Q00-Q99)
18. Symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R99)
19. Injury, poisoning and certain other consequences of external causes (S00-T88)
20. External causes of morbidity (V00-Y99)
21. Factors influencing health status and contact with health services (Z00-Z99)

Instructional Notations
# ICD-10-CM Tabular List of Diseases and Injuries

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20. External causes of morbidity (V00-Y99)
21. Factors influencing health status and contact with health services (Z00-Z99)
Chapter 9

Diseases of the circulatory system (I00-I99)

Excludes:
certain conditions originating in the perinatal period (P04-P96)
certain infectious and parasitic diseases (A00-B99)
complications of pregnancy, childbirth and the puerperium (O00-O9A)
congenital malformations, deformations, and chromosomal abnormalities (Q00-Q99)
endocrine, nutritional and metabolic diseases (E00-E88)
injury, poisoning and certain other consequences of external causes (S00-T88)
neoplasms (C00-D49)
symptoms, signs and abnormal clinical and laboratory findings, not elsewhere classified (R00-R94)
systemic connective tissue disorders (M30-M36)
transient cerebral ischemic attacks and related syndromes (G45.-)

This chapter contains the following blocks:

I00-102 **Acute rheumatic fever**
I05-109 **Chronic rheumatic heart diseases**
I10-115 **Hypertensive diseases**
I20-125 **Ischemic heart diseases**
I26-128 **Pulmonary heart disease and diseases of pulmonary circulation**
I30-152 **Other forms of heart disease**
I60-189 **Cerebrovascular diseases**
I70-179 **Diseases of arteries, arterioles and capillaries**
I80-189 **Diseases of veins, lymphatic vessels and lymph nodes, not elsewhere classified**
I95-199 **Other and unspecified disorders of the circulatory system**
Diseases of arteries, arterioles and capillaries (I70-I79)

I70  Atherosclerosis

**Includes:**
- arteriolosclerosis
- arterial degeneration
- arteriosclerosis
- arteriosclerotic vascular disease
- arteriovascular degeneration
- atheroma
- endarteritis deformans or obliterans
- senile arteritis
- senile endarteritis
- vascular degeneration

**Use additional code to identify:**
- exposure to environmental tobacco smoke (Z77.22)
- history of tobacco use (Z87.891)
- occupational exposure to environmental tobacco smoke (Z57.31)
- tobacco dependence (F17. -)
- tobacco use (Z72.0)

**Excludes2:**
- arteriosclerotic cardiovascular disease (I25.1-)
- arteriosclerotic heart disease (I25.1-)
- atheroembolism (I75.-)
- cerebral atherosclerosis (I67.2)
I70.2  Atherosclerosis of native arteries of the extremities

Mönckeberg's (medial) sclerosis

Use additional code, if applicable, to identify chronic total occlusion of artery of extremity (I70.92)

Excludes2: atherosclerosis of bypass graft of extremities (I70.30-I70.79)

I70.20  Unspecified atherosclerosis of native arteries of extremities

I70.201  Unspecified atherosclerosis of native arteries of extremities, right leg

I70.202  Unspecified atherosclerosis of native arteries of extremities, left leg

I70.203  Unspecified atherosclerosis of native arteries of extremities, bilateral legs

I70.208  Unspecified atherosclerosis of native arteries of extremities, other extremity

I70.209  Unspecified atherosclerosis of native arteries of extremities, unspecified extremity

I70.21  Atherosclerosis of native arteries of extremities with intermittent claudication

I70.211  Atherosclerosis of native arteries of extremities with intermittent claudication, right leg

I70.212  Atherosclerosis of native arteries of extremities with intermittent claudication, left leg

I70.213  Atherosclerosis of native arteries of extremities with intermittent claudication, bilateral legs

I70.218  Atherosclerosis of native arteries of extremities with intermittent claudication, other extremity

I70.219  Atherosclerosis of native arteries of extremities with intermittent claudication, unspecified extremity
Road to 10: The Small Physician Practice's Route to ICD-10

ICD-10 Guidance
It's important that you know that help is available if you have problems with ICD-10. **ICD-10 Resources and Contacts** from CMS are ready to guide you in your transition.

Specialty References
Explore the codes, primers for clinical documentation, clinical scenarios, and other resources dedicated to your specialty. Choose from the following:

Find Events Near You
CMS offers free events and training sessions around the country to help small physician practices prepare for ICD-10. Check the events calendar for events in your area.  

CMS Issues a Document to Assist Providers Find Answers to their ICD-10
Quick References

The following resources provide additional information that may be relevant to your practice. These resources are intended to supplement the information presented within your action plan.

Background/General ICD-10 Information
- CMS – ICD-10 Quick Start Guide
- CMS – ICD-10 ABCs Infographic
- CMS NARHC Presentation: ICD-10 – Rural or Urban; It Impacts All Providers
- CMS PAHCOM National Webinar: ICD-10 – The Provider Perspective
- CMS – The ICD-10 Transition: An Introduction
- CMS – ICD-10 Basics for Medical Practices
- CMS – ICD-10 Basics for Small and Rural Practices
- AMA – ICD-10 101: What It Is and Why It’s Being Implemented (requires AMA Log-In)
- AHIMA ICD-10 FAQs
- AHIMA ICD-10 Toolkit
- AHIMA ICD-10–CM/PCS Transition: Planning and Preparation Checklist

Clinical Documentation
- CMS PAHCOM National Webinar: Clinical documentation
- Health Condition Categories
- AHIMA Electronic Documentation Templates Support ICD-10-CM/PCS Implementation

Coding
- AAPC – ICD-10 Codes
- Medicare Learning Network ICD-10-CM/PCS The Next Generation of Coding
- CMS – National Coverage Determination (NCD) and Local Coverage Determination (LCD) code crosswalks
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CMS PAHCOM National Webinar: Clinical documentation
Health Condition Categories
AHIMA Electronic Documentation Templates Support ICD-10-CM/PCS Implementation

Coding

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Medicare Learning Network ICD-10-CM/PCS The Next Generation of Coding
CMS – National Coverage Determination (NCD) and Local Coverage Determination (LCD) code crosswalks

ICD-10-CM Codes and GEMS

2016 ICD-10-CM Index to Diseases and Injuries
2016 ICD-10-CM Tabular List of Diseases and Injuries
CMS – 2016 ICD-10-CM and GEMs
AMA – Crosswalking Between ICD-9 and ICD-10 (requires AMA Log-in)
CDC – International Classification of Diseases, Tenth Revision, Clinical Modification (ICD-10-CM)
WEDI – WEDI SNIP ICD-10 Crosswalks Primer White Paper
WEDI – ICD-10 Crosswalks White Paper: Treasure Map to ICD-10 Resources
AHIMA – Putting The ICD-10 GEMs Into Practice
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Instructional Notations

Includes:
The word 'Includes' appears immediately under certain categories to further define or give examples of the content of the category.

Excludes Notes:
The ICD-10-CM has two types of excludes notes. Each note has a different definition for use but they are both similar in that they indicate that codes excluded from each other are independent of each other.

Excludes 1:
A type 1 Excludes note is a pure excludes. It means 'NOT CODED HERE.' An Excludes 1 note indicates that the code excluded should never be used at the same time as the code above the Excludes 1 note. An Excludes 1 is used when two conditions cannot occur together, such as a congenital form versus an acquired form of the same condition.

Excludes 2:
A type 2 excludes note represents 'not included here.' An Excludes 2 note indicates that the condition excluded is not part of
Case Scenario

59 year old white male with right lower extremity rest pain with heel ulcer. Patient has history of 2 PPD tobacco use.

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I70.221</td>
<td>Atherosclerosis of native arteries of extremities with rest pain, right leg</td>
</tr>
<tr>
<td>I70.222</td>
<td>Atherosclerosis of native arteries of extremities with rest pain, left leg</td>
</tr>
<tr>
<td>I70.223</td>
<td>Atherosclerosis of native arteries of extremities with rest pain, bilateral legs</td>
</tr>
<tr>
<td>I70.228</td>
<td>Atherosclerosis of native arteries of extremities with rest pain, other extremity</td>
</tr>
<tr>
<td>I70.229</td>
<td>Atherosclerosis of native arteries of extremities with rest pain, unspecified extremity</td>
</tr>
<tr>
<td>I70.23</td>
<td>Atherosclerosis of native arteries of right leg with ulceration</td>
</tr>
</tbody>
</table>

Includes: any condition classifiable to I70.21-

Use additional code to identify severity of ulcer (L97.-)

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>I70.231</td>
<td>Atherosclerosis of native arteries of right leg with ulceration of thigh</td>
</tr>
<tr>
<td>I70.232</td>
<td>Atherosclerosis of native arteries of right leg with ulceration of calf</td>
</tr>
<tr>
<td>I70.233</td>
<td>Atherosclerosis of native arteries of right leg with ulceration of ankle</td>
</tr>
<tr>
<td>I70.234</td>
<td>Atherosclerosis of native arteries of right leg with ulceration of heel and midfoot</td>
</tr>
</tbody>
</table>
Case Scenario

59 year old white male with right lower extremity rest pain with heel ulcer. Patient has history of 2 PPD tobacco use.

- 170.234

170.23  Atherosclerosis of native arteries of right leg with ulceration

Includes: any condition classifiable to I70.211 and I70.221

Use additional code to identify severity of ulcer (L97.-)

- I70.231  Atherosclerosis of native arteries of right leg with ulceration of thigh
- I70.232  Atherosclerosis of native arteries of right leg with ulceration of calf
- I70.233  Atherosclerosis of native arteries of right leg with ulceration of ankle
- I70.234  Atherosclerosis of native arteries of right leg with ulceration of heel and midfoot

Atherosclerosis of native arteries of right leg with ulceration of plantar surface of midfoot
Case Scenario

59 year old white male with right lower extremity rest pain with heel ulcer. Patient has history of 2 PPD tobacco use.

- **170.234**
- **L97.412**

<table>
<thead>
<tr>
<th>Code</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td>L97.41</td>
<td>Non-pressure chronic ulcer of right heel and midfoot</td>
</tr>
<tr>
<td>L97.411</td>
<td>Non-pressure chronic ulcer of right heel and midfoot limited to breakdown of skin</td>
</tr>
<tr>
<td>L97.412</td>
<td>Non-pressure chronic ulcer of right heel and midfoot with fat layer exposed</td>
</tr>
<tr>
<td>L97.413</td>
<td>Non-pressure chronic ulcer of right heel and midfoot with necrosis of muscle</td>
</tr>
<tr>
<td>L97.414</td>
<td>Non-pressure chronic ulcer of right heel and midfoot with necrosis of bone</td>
</tr>
<tr>
<td>L97.419</td>
<td>Non-pressure chronic ulcer of right heel and midfoot with unspecified severity</td>
</tr>
</tbody>
</table>
Case Scenario

59 year old white male with right lower extremity rest pain with heel ulcer. Patient has history of 2 PPD tobacco use.

- 170.234
- L97.412
- F17.218

F17.21 Nicotine dependence, cigarettes
F17.210 Nicotine dependence, cigarettes, uncomplicated
F17.211 Nicotine dependence, cigarettes, in remission
F17.213 Nicotine dependence, cigarettes, with withdrawal
F17.218 Nicotine dependence, cigarettes, with other nicotine-induced disorders
F17.219 Nicotine dependence, cigarettes, with unspecified nicotine-induced disorders
F17.22 Nicotine dependence, abusing tobacco
## Case Scenario

<table>
<thead>
<tr>
<th>Diagnosis</th>
<th>ICD-10-CM Code</th>
<th>Gaps</th>
</tr>
</thead>
<tbody>
<tr>
<td>4. Varicose veins with bilateral inflammation and ulcer on left ankle</td>
<td>I83.11</td>
<td>Right leg inflammation only</td>
</tr>
<tr>
<td></td>
<td>I83.203</td>
<td>Left leg inflammation and ulcer</td>
</tr>
<tr>
<td></td>
<td>L97.329</td>
<td>Ulcer of left ankle, unspecified severity</td>
</tr>
</tbody>
</table>
Conclusion

- www.roadto10.org
- Code co-morbidities associated with primary vascular diagnosis
- Code patient compliance
  - Example: Patient discontinued coumadin and presented to office with recurrent DVT
- Audit claim denials and accept claims
- Communicate with Coders!!!
Please Complete the Post Meeting Survey:

• https://www.surveymonkey.com/r/5HDBJY8
Wrap-up

Next Meeting: May 2016, Location TBD
-One little goal?
-One big goal?