Appropriateness of Vascular Disease Management: Can It Be Measured?

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Disclosures

1. I am humbled by the opportunity to open the discussion on this topic

2. I am grateful to many individuals for their help including but not limited to...
   - Jens Jorgansen, M.D., FACS
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   - Norman Hertzer, M.D. to Jack Cronenwett, M.D. to Robert Zwolak, M.D. to Peter Lawrence, M.D.

4. Financial conflicts and competition of interests: I have much the same conflicts that every person in this room has in that I work in a system that measures my value chiefly upon RVU productivity.
Disclosures

PRESIDENTIAL ADDRESS
From the Society for Vascular Surgery

“Better” (sometimes) in vascular disease management
Peter F. Lawrence, MD, Los Angeles, Calif

In January 2015, *The New York Times* reported on a physician in Florida who collected $18 million in 1 year from Medicare, of which $13 million was received for performing arteriolar interventions on legs. The reporters questioned whether the lack of oversight in office-based procedural centers was leading to patients being subjected to too many vascular procedures, both venous and arterial. Of course, that physician denied there was any relationship between the lack of oversight and overtreatment, using as evidence the consistent quality of our SVS members’ responses to the *New York Times* article—not a single person disagreed with the basic point of the letter, even some whom I knew were occasionally performing “unnecessary” procedures! They seemed to be asking us to help develop a better system. Some thought...
Appropriate

*Adjective*: suitable or fitting for a particular purpose, person, occasion, etc.: 
an appropriate example; an appropriate dress

Egregious

*Adjective*: outstandingly bad; shocking: beyond inappropriate

syonyms: shocking · appalling · terrible · awful · horrendous · frightful · atrocious

Consider an appropriateness scale
Scenario: It is 1984. You are a new intern at Vanderbilt University. You and your wife are invited to a “dinner party by the pool” at the Chairman’s home to meet the surgical faculty and their spouses. The chairman lives just off of Belle Meade Boulevard near the Belle Meade Country Club.

How should you dress for the event?

Social Judgement

<table>
<thead>
<tr>
<th>Appropriate</th>
<th>Uncertain</th>
<th>Inappropriate to Egregious</th>
</tr>
</thead>
<tbody>
<tr>
<td>Navy or Master’s Green Blazer</td>
<td>Tank top</td>
<td></td>
</tr>
<tr>
<td>Button-down collar and tie</td>
<td>Swim Trunks</td>
<td></td>
</tr>
<tr>
<td>Pressed chino slacks</td>
<td>Flip-flops</td>
<td></td>
</tr>
<tr>
<td>Tassled loafers</td>
<td></td>
<td></td>
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</tbody>
</table>
Indications

Definition of *indication* (noun)

1a: something that serves to *indicate*
1b: something that is *indicated* as advisable or necessary
1c: a symptom that suggests that certain medical testing or treatment is necessary

We list our indications for vascular procedures in every VQI module

Why then should we be tasked with measurement of appropriateness?

*If a procedure is indicated, then how can it not be appropriate?*
**Procedures Care**

**Indications for Procedures and Appropriateness of Care**

**Procedure: Carotid Endarterectomy**

**Indication: Asymptomatic 70-80% internal carotid artery stenosis**

<table>
<thead>
<tr>
<th>Appropriate</th>
<th>Uncertain</th>
<th>Inappropriate to Egregious</th>
</tr>
</thead>
<tbody>
<tr>
<td>70 yo person</td>
<td>63 yo truck driver</td>
<td>90 yo female</td>
</tr>
<tr>
<td>Ipsilateral hemispheric TIA</td>
<td>takes an aspirin</td>
<td>takes an aspirin</td>
</tr>
<tr>
<td>Minimal comorbidities</td>
<td>intolerant to statins</td>
<td>will take a statin</td>
</tr>
<tr>
<td></td>
<td>“controlled” hypertension</td>
<td>lives in assisted-living</td>
</tr>
<tr>
<td></td>
<td>echolucent core</td>
<td>calcified lesion on grey scale</td>
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</table>

C. Ross 9/8/2017 VQI
Appropriate Care

Can Appropriateness of Care be Measured?

YES
Rationale for Measurement and Improvement in Appropriateness of Care

1. Patients, physicians, hospitals and payers are interested in the specific benefits of procedures

2. Appropriate procedures should improve a patient’s clinical outcome
   - benefit exceeds risks
   - provide durable relief from symptoms
   - prolong life in absence of adverse events related to the target lesion
   - should not expose a patient to harm or worsen the target lesion prognosis

3. Inappropriate procedures
   - confers no benefit
   - may be harmful to patients
   - often negatively impact the natural history of the disease process
   - generate unwarranted and even escalating costs to the healthcare system
Do other specialties measure appropriateness of care?

**ACCF/SCAI/STS/AATS/AHA/ASNC/HFSA/SCCT 2012 Appropriate Use Criteria for Coronary Revascularization Focused Update**

A report of the American College of Cardiology Foundation Appropriate Use Criteria Task Force, Society for Cardiovascular Angiography and Interventions, Society of Thoracic Surgeons, American Association for Thoracic Surgery, American Heart Association, American Society of Nuclear Cardiology, and the Society of Cardiovascular Computed Tomography

Endorsed by the American Society of Echocardiography and the Heart Rhythm Society

**Coronary Revascularization Use Criteria**

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**APPROPRIATE USE CRITERIA**

**ACR Appropriateness Criteria® Vascular Claudication—Assessment for Revascularization**

Expert Panel on Vascular Imaging: Osmanudrin Ahmed, MD, PhD; Michael Hanley, MD; Shelly B. Rems, MD, Anshu Chandra, MD, PhD; Benoit Derajders, MD, PhD; Kenneth L. Gage, MD, PhD; Marie D. Gerhard-Herman, MD, PhD; Michael Gitsburg, MD; Heather L. Gornik, MD; Isabel R. Oliwa, MD; Michael L. Szeigner, MD; Richard Steac, MD; Nagar Verna, MD, PhD; Frank J. Rybicki, MD, PhD; Karin E. Dill, MD

**Abstract**

Vascular claudication is a symptom complex characterized by reproducible pain and weakness in an active muscle group due to peripheral arterial disease. Noninvasive hemodynamic tests such as ankle brachial index, transcutaneous index, segmental pressure, and pulse volume recordings are considered the first imaging modalities necessary to reliably establish the presence and severity of arterial obstructions. Vascular imaging is commonly used in diagnosing individual lesions and staging patients for medical, percutaneous, or surgical intervention. Carotid artery imaging remains the reference standard for imaging the peripheral arterial tree, providing a dynamic and accurate depiction of the peripheral arteries. It is particularly useful when endovascular intervention is anticipated. When combined with noninvasive hemodynamic tests, however, noninvasive imaging, including ultrasound, CTA, and MR angiography, can also reliably confirm or exclude the presence of peripheral arterial disease. All modalities, however, have their own technical limitations when classifying the location, extent, and severity of disease.

The American College of Radiology Appropriateness Criteria are evidence-based guidelines for specific clinical conditions that are reviewed annually by a multidisciplinary expert panel. The guideline development and review include an extensive analysis of current medical literature from peer-reviewed journals and the application of well-established methodologies (BAP/MG/AGS Appropriations Method and Grading of Recommendations Assessment, Development, and Evaluation or GRADE) to the appropraiation of imaging and treatment procedures for specific clinical scenarios. In short, a reviewer who evidence is lacking or equivocal, expert opinion may supplement the available evidence to recommended imaging or treatment.
Is there a methodology for measuring appropriateness of care?

by Kathryn Fitch, Steven J. Bernstein, Maria Dolores Aguilar, Bernard Burman, Juan Ramos LaCalle, Pablo Lazzaro, Miejan van het Lo, Joseph McDonnell, Janeke Vader, James P. Kahn
Related Topics: Evidence Based Health Practice, Health Care Quality, Medical Professionals

Health systems should function in such a way that the amount of inappropriate care is minimized, while at the same time steering as little as possible on appropriate and necessary care. The ability to determine and identify which care is overused and which is underused is essential to this functioning. To this end, the "RAND/UCLA Appropriateness Method" was developed in the 1980s. It has been further developed and refined in North America and, increasingly, in Europe. The rationale behind the method is that randomized clinical trials — the "gold standard" for evidence-based medicine — are generally either not available or cannot provide evidence at a level of detail sufficient to apply to the wide range of patients seen in everyday clinical practice. Although robust scientific evidence about the benefits of many procedures is lacking, physicians must nonetheless make decisions every day about when to use them. Consequently, a method was developed that combined the best available scientific evidence with the collective judgment of experts to yield a statement regarding the appropriateness of performing a procedure at the level of patient-specific symptoms, medical history, and test results. This manual presents step-by-step guidelines for conceptualizing, designing, and carrying out a study of the appropriateness of medical or surgical procedures (for either diagnosis or treatment) using the RAND/UCLA Appropriateness Method. The manual distills the experience of many researchers in North America and Europe and presents current (as of the year 2000) thinking on the subject. Although the manual is self-contained and complete, the authors do not recommend that those unfamiliar with the RAND/UCLA Appropriateness Method independently conduct an appropriateness study; instead, they suggest "seeing one" before "doing one." To this end, contact information is provided to assist potential users of the method.
Is there a methodology for measuring appropriateness of care?

Task Force
Develops clinical scenarios

Writing Group

Technical Panel
Rates clinical scenarios based on best evidence and practice guidelines
Face to Face meetings
Transparency
12 – 17 members

There is a methodology for defining the level of agreement among panelists

1,2,3 inappropriate
4,5,6 Uncertain
7,8,9 appropriate

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Is there a methodology for measuring appropriateness of care?

*Disclaimer:* Just like clinical guidelines for management are not meant to be followed in the case of every patient, it is understood that good clinicians will not achieve 100% appropriateness in the care that they provide. But, the idea is to provide them with their scores relative to their peers, and in doing so, hope that care will be driven more towards an accepted standard.

Feedback example: Appropriateness of carotid endarterectomy
Your practice (all surgeons): 95%
Your individual practice: X %
Could we use the VQI to drive appropriateness?

Does Measuring Appropriateness and Providing Feedback Work?

Since PCI AUC introduced in 2009, there has been persistent and significant decreases in “inappropriate” PCI for nonacute coronary artery disease.

Desai NR, et al
Appropriate use criteria for coronary revascularization and trends in utilization, patient selection and appropriateness of PCI: Trends in appropriateness of PCI.
JAMA 2015; 314: 2045-2053
PCI AUC – Inappropriate without ACS

PCI procedures evaluated as “inappropriate” according to the Appropriate Use Criteria guidelines

Inclusion: All PCI Procedures
Exclusion criteria: CAD presentation of Unstable Angina, NSTEMI or STEMI

<table>
<thead>
<tr>
<th></th>
<th>FY 15</th>
<th>FY 16</th>
<th>FY 17</th>
</tr>
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<tbody>
<tr>
<td>Rate</td>
<td>0.78</td>
<td>0.85</td>
<td>1.19</td>
</tr>
<tr>
<td>Volume</td>
<td>5/643</td>
<td>4/472</td>
<td>4/337</td>
</tr>
<tr>
<td>NCDR 50th Percentile</td>
<td>13.12</td>
<td>12.47</td>
<td>11.91</td>
</tr>
<tr>
<td>NCDR 90th Percentile</td>
<td>0</td>
<td>0</td>
<td>0</td>
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</tbody>
</table>

Above whisker plot from last published report ending Q1 2017

Data provided from ACC NCDR Cath PCI Registry
Reservations and Warnings

1. Some dog can always play the system
   - need the most objective data possible
   - minimize self-reported subjective data
   - could there ever be a need for forensic audits?
2. Tests are not always accurate
   - carotid endarterectomy based solely on duplex data
   - curser placement when measuring AAA by any modality – is there a national standard?
3. Volume will decline – will access to competent care also decline?
4. Will other specialties come along and how would this affect our inter-specialty relationships?
   - SCAI
   - SVIR
   - SVM
5. Unknown, unknowns
Could we ultimately be driven so hard to stay within threshold indications that we do the wrong thing for an individual patient?

The Consequences of Real Life Practice of Early Abdominal Aortic Aneurysm Repair: A Cost-Benefit Analysis


WHAT THIS PAPER ADDS
The 55 mm intervention threshold for abdominal aortic aneurysm (AAA) repair is uniformly accepted; however, vascular registry data show a high incidence of premature repair (i.e., earlier than indicated by the consensus guidelines) in clinical practice. To estimate the consequences of the practice of premature repair, a simulation on the basis of the Medicare data for endovascular aneurysm repair was performed. Conclusions of this simulation are that although premature AAA repair beneficially influences survival, it comes with considerable costs (approx. 1 million USD per prevented aneurysm related death) thereby negatively impacting EVAR cost effectiveness.

Sub-threshold AAA repair costs the US 1,000,000 USD/ aneurysm rupture-related death prevented. Should we, therefore, wait to >55 mm and thereby allow our patients to be older, sicker, and perhaps exposed to increased complications even with EVAR? Is repairing a 5.3 cm AAA by EVAR in a healthy 67 yo male inappropriate?
Summary

1. Appropriateness of vascular disease management can (and should) be measured
2. Appropriateness of care measurement has a defined methodology that our specialty can follow
3. Appropriateness of care measurement and feedback has been proven to drive improvements in care and desired clinical behaviors
4. Vascular surgery, as a discipline, is late to this table, but through use of the VQI, we can catch up
5. We, as a specialty, need to lead this process in vascular disease with SCAI, SVM, SVIR
Appropriate Care