Practitioners’ View of Utilization Management in Cardiac Imaging:
Development, Implementation and Evaluation of Appropriate Use Criteria

Janet Wright, MD, FACC
Challenge of Managing Imaging Growth

- Acknowledge growth in imaging – includes both potential overuse and underuse.
- Current radiology benefit manager approach reviews individual cases:
  - Non-transparent criteria
  - Resource demanding, time intensive
  - Little opportunity for understanding practice patterns
  - Interferes with physician/patient relationship (access)
Why ACCF Appropriate Use Criteria?

• Improve utilization of resource-intensive tests and procedures
  – Developed by physicians/providers
  – Literature-based (when possible) approach
  – Initial focus on advanced diagnostic cardiac imaging
  – Expansion to revascularization, potential for other procedures

• Focused reduction of procedures based on clinical value and practice patterns, not indiscriminant volume reduction

• Facilitates continuous quality improvement though education and feedback

• Preserves patient/provider relationship

• Provides for continued patient access
Appropriate Use Criteria

Methodology

Writing Group
- Literature Review and Synthesis of the Evidence
- List of indications and definitions

External Reviewers
- Outside Review of Indications and Additional Modification Prior to Rating

Technical Panel
- Balanced panel comprised of different types of experts rates the indications in two rounds
- 1st Round – No interaction
  - Face-to-Face Meeting
- 2nd Round – Panel interaction

Appropriateness Determination
- Appropriateness Score
  - (7-9) Appropriate
  - (4-6) Possibly Appropriate/Uncertain
  - (1-3) Inappropriate

Implementation Working Group
- Retrospective comparison with clinical records
- Prospective clinical decision aids
- % Use that is Appropriate, Uncertain, Inappropriate
- Increase Appropriateness

Publications

✓ Nuclear cardiology (SPECT MPI)
  October 2005

✓ Cardiac CT/MR
  September 2006

✓ Echocardiography (Transthoracic/Transesophageal)
  June 2007

✓ Echocardiography (Stress)
  December 2007

• Revascularization (PCI and CABG)
  December 2008 (In Press)

• Revised SPECT Criteria (in preparation)

• CV imaging cross modality (efficiency) evaluation
Implementation and Evaluation

• Development of methodology and publication of Criteria is not enough to ensure change in clinical practice

• Formation of AUCIE (Appropriate Use Criteria Implementation and Evaluation) Working Group, with leadership teams
  – Education/Communication (Kim Williams)
  – Implementation Tools (electronic) (Michael Mirro)
  – Databases and Registries (James Min)
  – CMS Demonstration Pilot Proposal (Eric Peterson)
  – Performance Measurement Development (Robert Hendel)

• ACCF/United Healthcare SPECT Appropriateness Pilot
• MIPPA mandate for Appropriateness Criteria Demo
## Evaluation of Appropriateness

<table>
<thead>
<tr>
<th>Author, Year</th>
<th>Appropriate</th>
<th>Uncertain</th>
<th>Inappropriate</th>
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<tbody>
<tr>
<td>Hendel, 2006</td>
<td>83%</td>
<td>6%</td>
<td>11%</td>
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<tr>
<td>Williams, 2006</td>
<td>78%</td>
<td>5%</td>
<td>8%</td>
</tr>
<tr>
<td>Ayyad, 2007</td>
<td>85%</td>
<td>5%</td>
<td>10%</td>
</tr>
<tr>
<td>Druz, 2007</td>
<td>57%</td>
<td>33%</td>
<td>10%</td>
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<tr>
<td>Gaztanega, 2007</td>
<td>55%</td>
<td>28%</td>
<td>17%</td>
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<tr>
<td>Al-Mallah, 2007</td>
<td>75%</td>
<td>12%</td>
<td>13%</td>
</tr>
<tr>
<td>Gibbons, 2008</td>
<td>64%</td>
<td>11%</td>
<td>14%</td>
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ACCF/ASNC & United Healthcare Partnership
Pilot Project Goals

• Quality Improvement
  – Effective patient care
  – Efficient care

• Assess Validity of Appropriateness Criteria
  – Provide data for revisions/updates
  – Determine threshold levels of performance

• Assess Practice Patterns
  – Feedback to practice & individual physician
  – Identify areas for improvement

• Analysis of Decision Making
  – Correlation of level of appropriateness and image findings/patient outcome

• Alternative to Prior Notification/Prior Authorization
Pilot Project Methodology

• Sites
  – 7 participating sites
  – Cross-country geographic representation from Oregon to Florida

• Data Collection
  – Collected at imaging facility and feedback on practice patterns sent by sites to referring physicians
  – ALL SPECT MPI patients at participating practices
  – Collected on paper form and entered online at practice site
  – Collect data to evaluate appropriate use and test result

• Education and Feedback
  – Practice pattern reports
  – Change behavior at point of order with education and tools
Data Collection Form

- Front page
  - Patient demographics
  - History & risk factors
  - Prior procedures & tests

- Back page
  - Current study
  - Reference section

- Designed to be completed in one minute or less
Preliminary Findings

- Vast majority of patients able to be classified as to level of appropriateness
- Findings consistent with other studies
  - Wide practice variation
  - Few indications account for majority of inappropriate studies
  - Greater frequency of inappropriate tests from outside of lab
- Collection of test results
  - Validate criteria
  - Potential to be used to track downstream utilization – value of test (separate project - planning cohort study for CCTA)
Preliminary Data

- Data collection from March 3 - July 31, 2008
- 6/7 sites entering data
- 3,035 studies
- 256 excluded
  - 173 for insufficient data (64% from single practice)
  - 82 for conflicting scores

n = 2,779

18%
16%
66%

- Appropriate
- Uncertain
- Inappropriate
# Pilot Site Specific Results

<table>
<thead>
<tr>
<th>Site</th>
<th>N</th>
<th>Appropriate</th>
<th>Uncertain</th>
<th>Inappropriate</th>
<th>Not classified</th>
</tr>
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<tbody>
<tr>
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<td>157</td>
<td>55%</td>
<td>15%</td>
<td>22%</td>
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<td>#2</td>
<td>811</td>
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<td>2%</td>
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<td>#4</td>
<td>861</td>
<td>60%</td>
<td>21%</td>
<td>13%</td>
<td>3%</td>
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<tr>
<td>#5</td>
<td>291</td>
<td>79%</td>
<td>6%</td>
<td>11%</td>
<td>2%</td>
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<tr>
<td>#6</td>
<td>187</td>
<td>59%</td>
<td>19%</td>
<td>18%</td>
<td>2%</td>
</tr>
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</table>
### Most Common “Inappropriate” Indications

<table>
<thead>
<tr>
<th>INDICATION</th>
<th>FREQUENCY</th>
<th>PERCENT</th>
</tr>
</thead>
<tbody>
<tr>
<td>Detection of CAD</td>
<td>262</td>
<td>9%</td>
</tr>
<tr>
<td>Asymptomatic, low CHD risk</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asymptomatic, post-revascularization</td>
<td>91</td>
<td>3%</td>
</tr>
<tr>
<td>&lt; 2 years after PCI, symptoms before PCI</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Evaluation of chest pain, low probability pt</td>
<td>82</td>
<td>3%</td>
</tr>
<tr>
<td>Interpretable ECG and able to exercise</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Pre-operative assessment</td>
<td>21</td>
<td>1%</td>
</tr>
<tr>
<td>Low risk surgery</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Asymptomatic or stable symptoms</td>
<td>16</td>
<td>&lt;1%</td>
</tr>
<tr>
<td>&lt; 1 year after cath or abnormal prior SPECT</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Quality Improvement and Educational Initiatives

- *De-identified* feedback to *individual* practitioners regarding their practice patterns in reference to benchmarks
- Development and dissemination of list of top inappropriate indications
- Internal education within cardiology practice regarding key inappropriate indications and ordering patterns
- Support of joint attribution by a “non-threatening” letter to referring practitioners about inappropriate use and key targets
- Decision support tools, via PDA, Internet, order-entry
Not only Overuse, Potential Underuse

- Ischemia only documented 44% of time by stress testing prior to PCI (Lin, JAMA, 2008)
- COURAGE results would indicate that documentation of ischemia important prior to decision to proceed to elective PCI
- *Appropriate use criteria for revascularization (in press) emphasize need for objective evidence of ischemia before performing revascularization*
Conclusions

• Appropriate use evaluation tool
  – Rapid, easy to use, and provides feedback
• Transparent methods accepted by physicians and payer
• Potentially superior method to RBMs’ indiscriminant volume reduction and “expensive” approach
• Potential to understand the value of imaging test results and their impact on downstream utilization
• Important collaboration between physicians/ medical societies and health plans for ongoing quality improvement for cardiovascular imaging
Contact Information

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