

Echocardiography AUC: Rational Use or Rationing? A Clinical Case Exploration

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Appropriate Use Criteria (AUC)

- Why should providers care about AUC?
- What are Appropriate Use Criteria?
- How do I use AUC?
 - Presentation of clinical scenarios.
- Summary

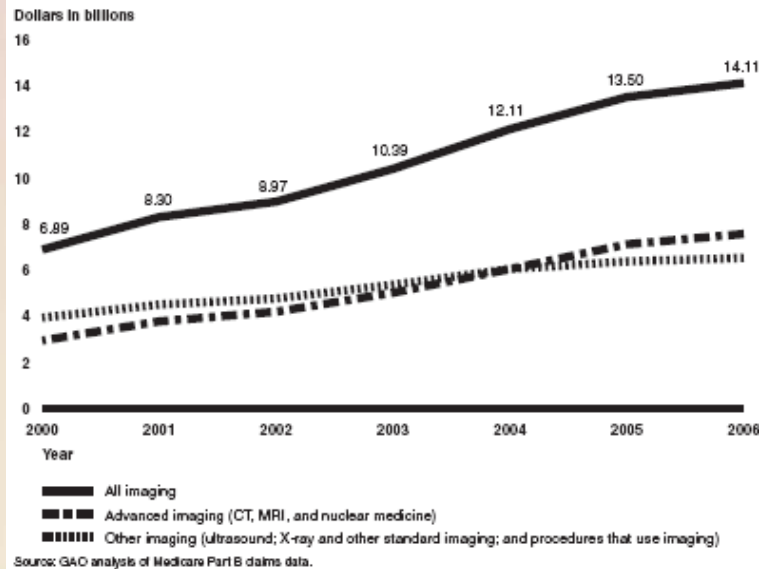
Why Should You Care?



I want you providers
to save money !!!

Growing Services

Figure 1: Total Medicare Expenditures for Imaging Services Paid under the Physician Fee Schedule, 2000 through 2006



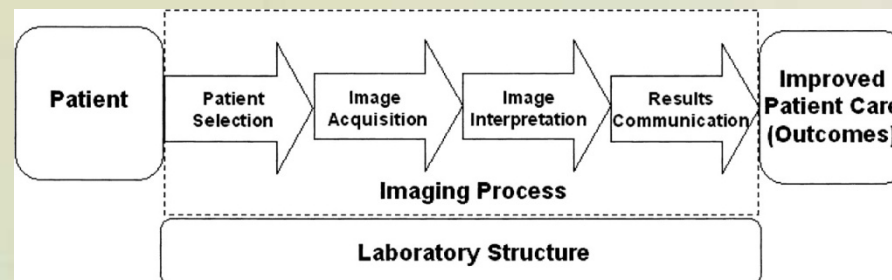
Differing Providers

Table 7

Specialty of Requesting Physicians on Echocardiography Claims, 2004

Specialty	Count of 5% Sample Claims Lines, 1000s	Fraction of Claims Lines
Total	1,068	100%
Internal medicine	382	36%
General practice	217	20%
Cardiology	312	29%
Pulmonary disease	23	2%
Nephrology	14	1%
Emergency medicine	14	1%
General surgery	13	1%
All others	92	9%

Changing Definition of Quality in Imaging



Why is all of this important?

U.S. Department of Health & Human Services

Development of a Plan to Transition to a Medicare
Value-Based Purchasing Program for Physician and
Other Professional Services

Issues Paper

Public Listening Session
December 9, 2008



Overview

The Centers for Medicare & Medicaid Services (CMS) has articulated a vision for health care quality—*the right care for every person every time*. To accomplish this vision, CMS is committed to care that is safe, effective, timely, patient-centered, efficient, and equitable.

Medicare's current fee-for-service payment systems, which pay on the basis of quantity and consumption of resources, do not support this vision for quality health care. Value-based purchasing (VBP) aligns payment more directly to the quality and efficiency of care provided by rewarding providers for their measured performance across the dimensions of quality. Through a number of demonstration projects, pilot programs, and other efforts, CMS has launched VBP initiatives for hospitals, professionals, nursing homes, home health agencies, and dialysis facilities.

Appropriateness Criteria

- Rational approach to test utilization
- Define “what to do”, “when to do”, & “how often.”
- Address misuse, overuse and underuse.
- Connected to guideline content.
- Most Expensive/Best test Vs. Most Appropriate test Vs. No test?

**EVIDENCE/GUIDELINE BASED VS. RBM (?EXPERT)
CRITERIA !!!**

ACCF/ASE/AHA/ASNC/HFSA/HRS/SCAI/SCCM/
SCCT/SCMR 2011 Appropriate Use Criteria for
Echocardiography

Journal of the American Society of Echocardiography
March 2011

- 97 clinical scenarios deemed appropriate
- 71 deemed inappropriate
- 34 deemed uncertain

- Echocardiograms appropriate for the initial evaluation for suspected cardiac conditions and for F/U of significant conditions or change in clinical status.
- Deemed inappropriate in routine f/u of clinically insignificant conditions, or in the stable patient

Ranking of Indications

- 7-9: Appropriate test for specific indication
 - Test **is** generally acceptable and **is** a reasonable.
- 4-6: Uncertain or unclear if appropriate for specific indication
 - Test **may** be generally acceptable and **may** be a reasonable.
- 1-3: Inappropriate test for specific indication
 - Test is **not** generally acceptable and is **not** reasonable.

Case 1 – The New Patient

35 yr F, bileaflet MVP. Last echo 6 m ago:
Normal LVEF/size, bileaflet MVP, mild MR
No sx, exercises 5x/week.
Exam: BP 110/65 Pulse 56 BPM.
Mid-systolic click, no murmur.

Is Echo Indicated?

No. Not indicated for mild MVP/MR
and no change in clinical status.

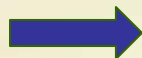
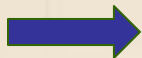
3 years later, develops new DOE. Exam shows new 3/6 holosystolic murmur with anterior radiation.

Is Echocardiogram is appropriate ?

Yes. Change in clinical status

Table 3 TTE for evaluation of valvular function

Indication	Appropriate use score (1-9)
Murmur or Click With TTE	
34. • Initial evaluation when there is a reasonable suspicion of valvular or structural heart disease	A (9)
35. • Initial evaluation when there are no other symptoms or signs of valvular or structural heart disease	I (2)
36. • Re-evaluation in a patient without valvular disease on prior echocardiogram and no change in clinical status or cardiac exam	I (1)
37. • Re-evaluation of known valvular heart disease with a change in clinical status or cardiac exam or to guide therapy	A (9)
Native Valvular Stenosis With TTE	
38. • Routine surveillance (<3 y) of mild valvular stenosis without a change in clinical status or cardiac exam	I (3)
39. • Routine surveillance (≥3 y) of mild valvular stenosis without a change in clinical status or cardiac exam	A (7)
40. • Routine surveillance (<1 y) of moderate or severe valvular stenosis without a change in clinical status or cardiac exam	I (3)
41. • Routine surveillance (≥1 y) of moderate or severe valvular stenosis without a change in clinical status or cardiac exam	A (8)
Native Valvular Regurgitation With TTE	
42. • Routine surveillance of trace valvular regurgitation	I (1)
43. • Routine surveillance (<3 y) of mild valvular regurgitation without a change in clinical status or cardiac exam	I (2)
44. • Routine surveillance (≥3 y) of mild valvular regurgitation without a change in clinical status or cardiac exam	U (4)
45. • Routine surveillance (<1 y) of moderate or severe valvular regurgitation without a change in clinical status or cardiac exam	U (6)
46. • Routine surveillance (≥1 y) of moderate or severe valvular regurgitation without change in clinical status or cardiac exam	A (8)



Case 2: The Hypertensive Patient

50 year-old man sees PCP for routine physical exam.

Overweight, with inc lipids and fasting glucose 100 mg/dl.

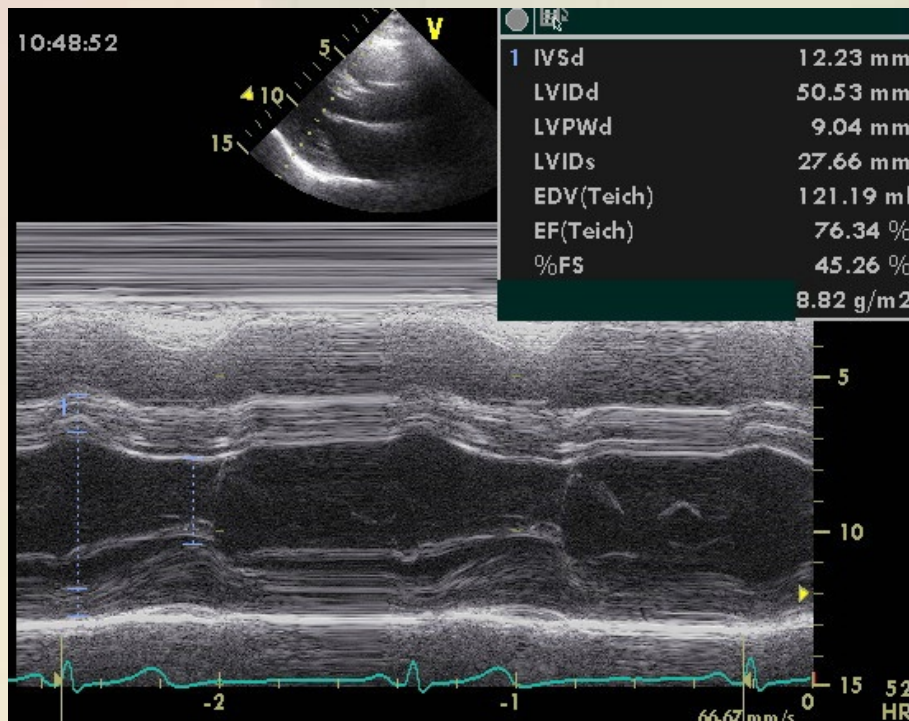
Exam, BP was 148/92mmHg.

EKG: left ventricular hypertrophy, left atrial enlargement.

Is Echo Appropriate?

Yes. Appropriate for the evaluation of suspected hypertensive heart disease.

Case 2: The Hypertensive Pt, cont.



Findings:

Concentric LVH

Mild LA dilation

Mildly impaired LV relaxation

No coarctation

Course:

Initiation of antihypertensives, exercise, weight loss program with reevaluation of glucose and lipids. BP improved at 1 year.

Case 2: The Hypertensive Pt., cont.

- **Is Echo Indicated?**
- **No.** Routine echo without change in clinical status NOT indicated in this setting.

Table 6 TTE for evaluation of hypertension, HF, or cardiomyopathy

Indication	Appropriate Use score (1–9)
Hypertension With TTE	
67. • Initial evaluation of suspected hypertensive heart disease	A (8)
68. • Routine evaluation of systemic hypertension without symptoms or signs of hypertensive heart disease	I (3)
69. • Re-evaluation of known hypertensive heart disease without a change in clinical status or cardiac exam	U (4)
HF With TTE	
70. • Initial evaluation of known or suspected HF (systolic or diastolic) based on symptoms, signs, or abnormal test results	A (9)
71. • Re-evaluation of known HF (systolic or diastolic) with a change in clinical status or cardiac exam without a clear precipitating change in medication or diet	A (8)
72. • Re-evaluation of known HF (systolic or diastolic) with a change in clinical status or cardiac exam with a clear precipitating change in medication or diet	U (4)
73. • Re-evaluation of known HF (systolic or diastolic) to guide therapy	A (9)

(Continued)

Case 3: Cardiomegally on CxR

- 55 year-old executive woman referred to you for an increased cardiac silhouette on chest x-ray.
- No risk factors, no sx, good effort tolerance. PE – Normal. BP 135/70, HR 72. Apex not displaced. Normal heart sounds, No JVD, No edema.
- **Is Echo Indicated?**
- **Yes.** Echo appropriate when prior testing suggests heart disease

Case 3: Cardiomegally on CxR

Table 1 TTE for general evaluation of cardiac structure and function

Indication	Appropriate use score (1-9)
Suspected Cardiac Etiology—General With TTE	
1. • Symptoms or conditions potentially related to suspected cardiac etiology including but not limited to chest pain, shortness of breath, palpitations, TIA, stroke, or peripheral embolic event	A (9)
2. • Prior testing that is concerning for heart disease or structural abnormality including but not limited to chest X-ray, baseline scout images for stress echocardiogram, ECG, or cardiac biomarkers	A (9)

- Normal LV size, wall thickness, LV function.
- **Echo can exclude:** Pericardial effusion, LVH, dilated heart.
- No need for repeat echo if heart size remains enlarged on future CXR and no change in clinical status.

Case 4: Patient with TIA

- 70 year-old man with amaurosis fugax.
HTN, TC 245 mg/dl, LDL 160 mg/dl, smoker, NIDDM.
- BP 150/80, pulse 80 reg, S4, 1/6 SEM, neuro non-focal.
- ECG: SR, LVH, LAA.

- **Is Echo Indicated?**
- **Yes.** Echo appropriate in TIA or CVA to r/o potential cardiac source of embolism.
- **Findings:** Concentric LVH, normal LVEF, mild LAE, no obvious PFO/ASD, aorta poorly visualized.

Case 4: Patient with TIA, cont.

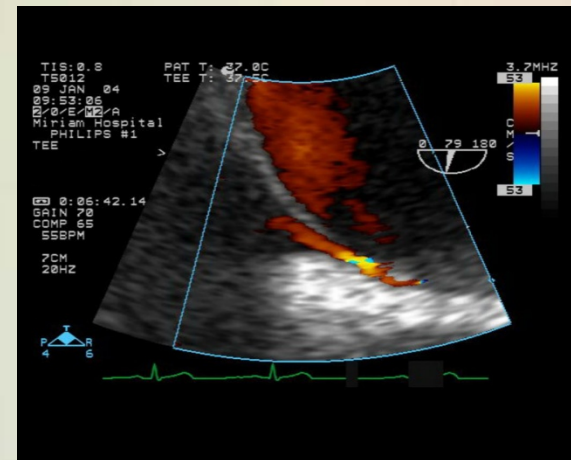
- **Is TEE Appropriate?**

TEE as Initial or Supplemental Test—Embolitic Event

109.	• Evaluation for cardiovascular source of embolus with no identified noncardiac source	A (7)
110.	• Evaluation for cardiovascular source of embolus with a previously identified noncardiac source	U (5)
111.	• Evaluation for cardiovascular source of embolus with a known cardiac source in which a TEE would not change management	I (1)

- **Yes.** TEE appropriate to r/o Cardiac Source Of Embolism when no identified non-cardiac source identified.

TEE provides enhanced detection of PFO,
improved assessment of LAA
improved visualization of aorta.



AUC Pros and Cons:

Pros:

- Evidence-based
- Implementable
- Increase appropriate utilization, decrease inappropriate
- Evolving
- Us, not an RBM

Cons:

- Comprehensive, not perfect
- General criteria for imaging
- Uncertain \neq unindicated
- Evolving

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ASE Appropriateness Criteria

Indication Index

look for

A

Adult Congenital Heart Disease

C

Arrhythmias

Cardiomyopathy (Other)

Cardiotoxic Agents: Therapy with

H

Heart Failure

Hypertension

Home Index Link History

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ASE Appropriateness Criteria

Heart Failure

Inappropriate

Sections

- Indication : 42
 - Routine (yearly) re-evaluation of patients with heart failure (systolic or diastolic) whom there is no change in clinical status
 - Appropriateness Score (1-9): I (3)

Home Index Link History See Also

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ASE Appropriateness Criteria

Evaluation... (Algorithm)

Native Valvular Stenosis or Regurgitation

Routine follow-up (3)

Asymptomatic (4)

Severe (5)

Appropriate (6)

Home Index Link History More

Appropriateness use criteria for transthoracic echocardiography: Relationship with radiology benefit managers preauthorization determination and comparison of the new (2010) criteria to the original (2007) criteria

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Background In response to growth in cardiac imaging, medical societies have published appropriateness use criteria (AUC) and payers have introduced preauthorization mandates, largely through radiology benefits managers (RBM). The correlation of algorithms used to determine preauthorization with the AUC is unknown. In addition, studies applying the 2007 AUC for transthoracic echocardiography revealed that many echocardiograms could not be classified. We sought to examine the impact of the revised 2010 AUC on appropriateness ratings of transthoracic echocardiograms previously classified by the 2007 AUC and the relationship of preauthorization determination to AUC rating.

Methods We reclassified indications for transthoracic echocardiography as appropriate, inappropriate, uncertain, or unclassifiable using the 2010 AUC in the same 625 patients previously reported using 2007 AUC. We also evaluated the relationship between preauthorization status by 2 RBM precertification algorithms and appropriateness rating by 2007 AUC.

Results The appropriateness classification of 148 (24%) transthoracic echocardiograms was changed by the updated AUC ($P < .001$). The number of unclassifiable echocardiograms was markedly reduced from 99 (16%) to 8 (1%), and more echocardiograms were classified as inappropriate (95 [15%] vs 45 [7%]) or uncertain (43 [7%] vs 0 [0%]). Limited correlation between the 2007 AUC rating and RBM preauthorization determinations was noted, with only moderate agreement with RBM no. 1 (90%, $\kappa = 0.480$, $P < .001$) and poor agreement with RBM no. 2 (72%, $\kappa = 0.177$, $P < .001$).

Conclusion The updated AUC (2010) provide enhanced clinical value compared with 2007 AUC. There is limited agreement between RBM preauthorization determination and 2007 AUC rating. (*Am Heart J* 2011;0:1-8.)

Summary:

- Utilization is under increasing scrutiny.
- AUC is an objective, guideline based method of determining appropriateness.
- Effective, implementable guidelines exist.
- A software tool is currently under development.
- It's as close as your iPhone.

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After RBM challenge, Del. requires Blue Cross to adopt appropriate use:

The Delaware Insurance Commissioner has ordered BC/BS of Delaware to adopt the American College of Cardiology's FOCUS program, based on national medical society-developed appropriate use criteria.

The order comes on the heels of questions from patients and the media regarding effective delivery of care under Blue Cross Blue Shield of Delaware's (BCBSD) use of prior authorization for cardiac nuclear imaging via radiology benefit managers (RBM), which were used as gatekeepers for access to medical imaging. In April, the Delaware Department of Insurance ruled that the payor had violated state law by inappropriately denying cardiac imaging exams.

Thank you.

