Two Perspectives of the Appropriate Use Criteria in Cardiology Practice: Advantageous and Useful or Limiting and Harmful?

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The appropriate use criteria (AUC) has become an integral part of the cardiologist's daily practice and have evolved greatly since their inception over a decade ago. However, as health care costs continue to rise, the AUC has come to play an even more pivotal role in the way medicine—specifically cardiology—is practiced today. This editorial describes two opposing viewpoints commonly held by practicing clinicians of the AUC. Written from the perspective of two fellows-in-training looking ahead at the challenges and opportunities of clinical practice (under the auspices of several experienced clinicians and leaders of the American College of Cardiology), this article provides a fresh perspective on the impact AUC has on our patients, clinicians, and the health care system.

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Scenario 1: The AUC Can Be Limiting and Potentially Harmful

The methodology for the appropriate use criteria (AUC) was originally developed by the Rand Corporation (Santa Monica, CA) and combines the best evidence with the collective judgment of experts to develop a consensus document.[1] Although the AUC should facilitate access to care, patient outcomes, and reimbursement, this is not always the case. It sometimes proves to be an extra burden on physicians by adding to an already mounting pile of administrative tasks.

Other specialties recognize that the American College of Cardiology (ACC) and its partner societies have the most experience of any specialty with AUC; the ACC has modified the methodology for the AUC to be more clinically useful.[2,3] The ACC has a powerful tool in the AUC, but with great power comes great responsibility. By being the first to adopt this tool, the field of cardiology has been in the crosshairs of several players in the health care arena. An unintended consequence of the AUC is its misuse. The AUC can be used to mislabel physicians

who are trying to provide the best patient-centered care, and can be used to penalize the sacrosanct shared decision making that patients and providers value.

A 56-year-old executive walks into your office (Dr. B.) with an 80% mid left anterior descending artery (LAD) lesion. She sits down and says, "Doc, I've tried all these different medications to treat my chest pain but I can't keep taking them." She admits that they work but she simply cannot tolerate their side effects. She has taken four different agents already. She begs you, "Please put a stent in!" Her symptoms are debilitating, as are the medications she takes to treat them. You fear that performing a straightforward stent procedure of her mid LAD will result in a "black mark" on your record and you must weigh this concern against the patient's right to select among reasonable options for her medical care.

A 45-year-old working mother with hypertension and dyslipidemia was referred to your cardiology clinic for chest pain with complaints of shortness of breath and palpitations. She has poor R-wave progression on an electrocardiogram (ECG) performed in both your office and the referring physician's office, so you order an exercise stress test with echocardiography for an imaging component; however, her insurance company refuses to pay. Why? Because, unless she has been diagnosed with a prior anterior wall myocardial infarction, the insurer argues that it is not be appropriate for the physician to jump straight to ordering a stress test with imaging. The insurance adjuster argues instead that she should have a treadmill ECG stress test. After spending an extra hour with the adjuster on the phone, you realize your argument is not gaining traction. Ultimately, you acquiesce to the insurer's demands and order a treadmill stress test, then a resting echocardiogram; after deeming all those tests nondiagnostic, you order a stress echocardiogram.

Sound familiar? These are both real scenarios encountered by clinicians in different parts of the country. Both can be considered inappropriate use of the AUC. The AUC has come a long way since it was initially drafted; however, since its inception, it still faces challenges.

The New York state Medicaid update from June 2013 stated, "Effective July 1, 2013, New York State Medicaid fee-for-service and Medicaid Managed Care will disallow payment for percutaneous coronary intervention (PCI) for those patients without acute coronary syndromes or prior coronary artery bypass graft surgery who are in the *rarely appropriate* category for the procedure based on the newly released guidelines."[4] Not surprisingly, this drew the ire of many cardiologists in New York, leading to a strongly worded letter from the New York Chapter of the ACC to the state house in Albany. This led to the modification of the policy to include a review process involving interventional cardiologists. Gregory J. Dehmer, MD, MSCAI, the Past President of the Society for Cardiovascular Angiography and Interventions, said it best: "…AUC are not to be used as a method to determine payment. The AUC is intended as a quality improvement tool."

Simultaneous to New York State's Medicaid Commission, the Maryland Chapter of the ACC proactively sought legislation to address the inconsistent utilization of peer review and was the catalyst in seeking enhanced independent, external peer review for PCI. The Maryland ACC will play an integral role in the regulatory process to implement regulations and ongoing performance measures as a member of the newly established Clinical Advisory Group. Thus, in April 2013, the Maryland General Assembly passed legislation establishing an independent external review process to ensure the medical necessity of coronary stent placement.[5]

American health care is rapidly changing. Regardless of which political party won the 2016 election, health care will never be the same again. With the repeal of the Sustainable Growth Rate in March 2015, and the implementation of the Medicare Access and CHIP Reauthorization Act of 2015 in its stead, we are moving away from a fee-for-service model toward a more capitated payment system. Payers are looking for ways to reward and penalize physicians for the quality of their work, and they view the AUC as a means by which to do so. What better way to differentiate between physicians than to reward those who practice most "appropriately"? However, applying a population-based pattern of care to individual clinicians and scoring them by such a metric does not consider patient autonomy, shared decision making, or patient-centered care. Sometimes patients request things considered *rarely appropriate* because they feel that the intervention classified as *appropriate* by the AUC is causing them to suffer and detracts from their quality of life (such as in the example of Dr. B, above). This can put clinicians in a tough spot.

Therein lies the rub—payers are now demanding that physicians justify the use of tests and procedures (if not considered appropriate) before the payer grants a preauthorization. To further complicate the issue, each insurer has its own definitions and criteria.

The AUC was originally intended to serve as a quality improvement tool—not a method to determine payment. Moreover, because every clinical scenario is not covered by the AUC criteria (as stated in the preamble in any AUC document), these onerous demands often lead to providers ordering tests to appease insurers—often driving up the cost of health care.

The authors of the AUC clearly denote at the beginning of their consensus statements that the "appropriateness criteria are intended to assist patients and clinicians, but are not intended to diminish the acknowledged difficulty or uncertainty of clinical decision making and cannot act as substitutes for sound clinical judgment and practice experience."[6] Physicians are proud to be in a profession that takes pride in self-regulation.[7] However, there must be some vigilance of external regulatory forces, which, in the name of good intentions, may end up causing unintended harm to patients and the patient-provider relationship. Without this attentiveness, we will see the withholding of payments for necessary procedures, mislabeling of honest physicians who are trying to respect patient autonomy, and an increase in the administrative burden on already overworked clinicians. Subsequently, health care advocates will continue to see a large proportion of physicians (not only cardiologists) and leaders in the medical field, take a stand against the abuse and misapplication of the AUC.

The AUC should be used as a population-based tool with benchmarking. In this way, clinicians and health care organizations can get a sense of general practice patterns and provide the opportunity for self-reflection and constructive feedback. Ironically, AUC is much less of an administrative burden than Radiology Benefit Manager (RBM) programs that require phone calls. A better world would include AUC use by clinicians in place of RBMs. This would, in turn, help physicians modify their practice philosophies to become more cost effective and provide higher quality of care—befitting of our organization's mission statement "to transform cardiovascular care and improve heart health." In an editorial a decade ago, Dr. Michael J. Wolk commented, "We must be good stewards of the gifts—and responsibilities—that have been entrusted to us."[8] This message still rings true today as AUC and practice regulation play a greater role in patient care.

Scenario 2: The AUC Is Advantageous and Useful

In 2005, the ACC published the appropriateness document for the use of cardiac imaging procedures.[9] This endeavor was borne out of concerns of escalating societal costs of health care and the wide regional variability in practice patterns that suggested the potential for misuse and overuse of diagnostic and therapeutic modalities ordered for reasons not in the direct interest of the patient.[10] These issues threatened to tarnish the golden era of cardiology, in which tremendous technical advances over the preceding two decades had broadened the scope of therapeutic options for patients and provided an unparalleled opportunity to decrease the burden of cardiovascular disease. The first appropriateness document was drafted with the moral imperative incumbent on the cardiology community to lead the way in improving quality of care through uniform application of evidence-based practices.[8] The definition of appropriateness in this context states that, "An appropriate diagnostic or therapeutic procedure is one in which the expected clinical benefit exceeds the risks of the procedure by a sufficiently wide margin such that the procedure is generally considered acceptable or reasonable care."[11]

As mentioned, the core construct of AUC development is based on the validated RAND/UCLA Appropriateness Method. This approach relies on expert panels that develop a list of clinical indications and iteratively assign a numeric score to the performance of a test or procedure relative to that indication.[12,13] The final scores are tabulated into three appropriateness categories (*appropriate*, *may be appropriate*, and *rarely appropriate*) that represent a continuum of risk and benefits as these relate to diverse patient populations. At an individual level, however, exceptional circumstances may exist that are not accounted for in the limited scenarios of the AUC. As such, the AUC in these circumstances may not align with what is considered reasonable by the patient and physician. Some procedures rated *appropriate* may be reasonable to forego, whereas others rated *rarely appropriate* should still be performed.

The appropriate use of coronary angiography and PCI is a priority given its ubiquity, cost, and potential for complications.[14] A 2011 review of the National Cardiovascular Data Registry (NCDR) CathPCI Registry® reported that the vast majority of the acute PCIs were rated *appropriate,* whereas 12% of the nonacute PCIs were classified as *rarely appropriate*.[15] There was substantial variation noted among hospitals performing nonacute *rarely appropriate* PCIs—ranging from 0% to 55%. Although these data raise the possibility of PCI overuse, it is also conceivable that a significant proportion represent the clinical indications not captured in the AUC document or the complex decisions

made at the bedside, where patient and physician are in agreement regarding the need for the procedure regardless of AUC classification. As such, it is not reasonable to expect 100% concordance with appropriateness criteria. Situations in which AUC do not align should prompt a review of the risks and benefits of the proposed test or procedure. In this regard, the AUC can minimize biases and help us engage patients in rational decision making.

The AUC should be viewed for what it is—an evidence-based, consensus document that complements clinical decision making, rather than replaces it. In any given clinical practice, the AUC can help define the case mix of patients undergoing procedures and can highlight opportunities for quality improvement through benchmark comparisons at regional and national levels. In fact, an NCDR CathPCI Registry study exploring the impact of the 2012 AUC for coronary revascularization reported a marked decline in the volume of nonacute PCI procedures from 2009 through 2014.[16] Patients undergoing PCI for nonacute indications had more angina (Canadian Cardiovascular Society class III/IV) and received more antianginal therapy after the publication of the guidelines than before. Although the rates of inappropriate procedures declined, significant hospital-wide variation persisted, suggesting a need for continued emphasis on quality improvement. Similar results from other retrospective studies suggest that the AUC can have a significant impact on the scope of clinical practice.[17]

The AUC is easy to incorporate into clinical practice. With proper planning, a clear understanding of the concept, and use of existing web-based tool kits, the use of AUC should neither be time consuming nor cost prohibitive. In determining PCI appropriateness, the following five essential preprocedural elements must be known:

1. Symptom status
2. Preprocedural stress test results
3. Concomitant medical therapy
4. Presence or absence of an acute coronary syndrome
5. Previous coronary artery bypass surgery

The Society of Coronary Angiography and Interventions' AUC web-based application (app) is easily accessible and allows a quick calculation of the AUC classification with the input of these preprocedural elements.[18] The app provides users with key data, including the relevant AUC scenario number, the indication score, and a summary of the patient's case in a printer-friendly format that can be added to the patient's chart. The ACC'S FOCUS app is a similar point-of-care clinical decision support tool that helps assess the appropriateness of imaging studies.[19] It can be accessed as a web module or mobile app, and can be integrated into the Electronic Health Record. Documentation takes an average of 30 to 90 seconds. Such point-of-order use of the AUC as a decision support tool improves indication-based testing for evaluation of coronary artery disease, both by decreasing testing for *rarely appropriate,* as well as increasing testing for *appropriate* indications.[20]

Comparisons between real-life practice and the AUC have highlighted differences that have led to modifications in the AUC. In 2013, the AUC Task Force updated the AUC methodology in response to external feedback on the early AUC documents.[6] Additional clinical indications were added, and the terms *uncertain* and *inappropriate* were substituted with *maybe appropriate* and *rarely appropriate* to remove the ambiguity related with the original terms. Adjustments in panel composition were made to have a more equitable representation of all major stakeholders. The 2012 update to the PCI appropriateness document incorporated the use of fractional flow reserve as a diagnostic tool in determining appropriateness of PCI.[13] These refinements and updates reflect a commitment to adapt in the face of evolving contemporary practice patterns and accruing scientific evidence.

Since the first document in 2005, there have been numerous additional AUC publications involving new disciplines, as well as revisions to the original criteria. This expansion is reflective of the evolution of the AUC concept and its wider applicability to practice of clinical cardiology. This critically important initiative underscores our responsibility and the right to determine the best care for our patients. It will be to our benefit if we utilize the AUC to reflect on the value of care we provide to our patients and engage in its ongoing improvement. The AUC should be used as a population-based tool with benchmarking so clinicians and their organizations can see general practice patterns. Feedback should ideally lead to reflection on practice philosophy and practice adjustment, allowing clinicians to become more effective. ■

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