2013 Appropriate Utilization of Cardiovascular Imaging

A Methodology for the Development of Joint Criteria for the Appropriate Utilization of Cardiovascular Imaging by the American College of Cardiology Foundation and American College of Radiology

Writing Group–J. Jeffrey Carr, MD, MSc, FACR, FACC, Robert C. Hendel, MD, FACC, Richard D. White, MD, FACR, Manesh R. Patel, MD, FACC, Michael J. Wolk, MD, MACC, Michael A. Bettmann, MD, FACR, Pamela Douglas, MD, MACC, Frank J. Rybicki, MD, PhD, Christopher M. Kramer, MD, FACC, Pamela K. Woodard, MD, FACR, Leslee J. Shaw, PhD, FACC, E. Kent Yucel, MD, FACR

The American College of Radiology (ACR) and the American College of Cardiology Foundation (ACCF) have jointly developed a method to define appropriate utilization of cardiovascular imaging. The primary role of this method is to create a series of documents to define the utility of cardiovascular imaging procedures in relation to specific clinical questions, with the aim of defining what, if any, imaging tests are indicated to help to determine diagnosis, treatment, or outcome. The methodology accomplishes this aim through the application of systematic evidence reviews integrated with expert opinion by means of a rigorous Delphi process. By obtaining broad input during the development process from radiologists, cardiologists, primary care physicians, and other stakeholders, these documents are intended to provide practical evidence-based guidance to ordering providers, imaging laboratories, interpreting physicians, patients, and policymakers as to optimal cardiovascular imaging utilization. This document details the history, rationale, and methodology for developing these joint documents for appropriate utilization of cardiovascular imaging.

Key Words: ACCF Appropriate Use Criteria, appropriateness criteria, appropriate utilization, heart failure, imaging, methods, multimodality.

J Am Coll Radiol 2013;10:456-463. © 2013 by the American College of Cardiology Foundation and the American College of Radiology

INTRODUCTION

Cardiovascular imaging procedures provide essential information for the detection, diagnosis, and management of disease, and serve a vital role in risk assessment and clinical decision making. The relevant procedures include echocardiography, radionuclide imaging, cardiac magnetic resonance, cardiac computed tomography, and invasive coronary angiography. The optimal use of these procedures for specific clinical scenarios is unclear and provides the nidus for the development of appropriate use recommendations. Over the last decade, there has been a tremendous growth in the use of imaging, disproportionate to the growth of other components of healthcare spending. This has led to scrutiny of all medical imaging and, in particular, imaging related to

This document was approved by the American College of Radiology Board of Chancellors in January 2013 and the American College of Cardiology Foundation Board of Trustees in December 2012.

The American College of Radiology requests that this document be cited as follows: Carr JJ, Hendel RC, White RD, Patel MR, Wolk MJ, Bettmann MA, Douglas P, Rybicki FJ, Kramer C, Woodard PK, Shaw LJ, Yucel EK. 2013 Appropriate Utilization of Cardiovascular Imaging: A Methodology for the Development of Joint Criteria for the Appropriate Utilization of Cardiovascular Imaging by the American College of Cardiology Foundation and American College of Radiology. J Am Coll Radiol 2013; 10:456-463. doi: 10.1016/j.jacr.2013.03.019.

0091-2182/13/$36.00 • http://dx.doi.org/10.1016/j.jacr.2013.03.019

cardiovascular care. The reasons for the growth of imaging are many: however, perceived improvement in patient care by both providers and patients is a driving factor. At the same time, appropriate utilization has been questioned due to the geographic variability in the use of cardiovascular imaging procedures, unexplained by differences in patient demographics or risk factors (1,2). In an effort to contain the growth and associated costs of cardiac imaging, payers have adopted various approaches, including prior authorization, in an effort to limit testing. A crucial concern is that these controls may limit patient access to the appropriate imaging procedures and/or direct patients to higher cost through delay in diagnosis or layered testing diagnostic approaches. Additionally, pre-authorization frequently relies on proprietary algorithms, is inconsistent with published literature and/or guidelines, and methodologies vary greatly among payers and regions of the country.

Clinical guidelines and performance measures have been successfully developed for years, and their positive impact on patient outcomes has been well demonstrated. However, the evaluation of the impact of diagnostic tests on patient outcomes presents unique challenges (3). Methods and funding to evaluate diagnostic testing have lagged behind those related to treatments (4). In a similar manner, using an appropriate testing strategy (i.e., clinical guidelines) is increasingly recognized as an important determinant of healthcare quality (5).

HISTORICAL PERSPECTIVE

The American College of Cardiology Foundation (ACCF) and American College of Radiology (ACR) have both produced appropriate use guidance documents in an effort to delineate recommended utilization of cardiovascular imaging. The ACR Task Force on Appropriateness Criteria was created in 1993 to develop nationally accepted, evidence-based, methodologically sound clinical guidelines, called "appropriateness criteria," to assist referring physicians in making appropriate imaging decisions. These criteria are developed beginning with a systematic critical review of published literature on the topic. Ratings are performed based on the evidence and supplemented by expert opinion as needed, and then finalized using a modified Delphi process. These ACR Appropriateness Criteria (AC) are developed using a carefully defined, reproducible methodology and cover the spectrum of diagnostic, interventional, and therapeutic procedures. Each AC addresses a specific clinical scenario, generally with variants as necessary, to address clinical reality. As of the June 2012 release, there are 180 ACR Appropriateness Criteria topics addressing over 850 disease process variants (6). Each AC document is updated every 2 years.

The ACCF has published clinical guidelines and performance measures for more than 25 years, and in 2004, initiated the development of appropriate use criteria in conjunction with the ACR, the American Heart Association, and cardiovascular subspecialty societies, in order to provide physician-specific guidance when considering utilization of cardiovascular imaging and other technology. To date, these efforts have been modality specific for imaging but have considered multiple technologies for revascularization. The ACCF method also draws upon the available evidence base and utilizes a modified Delphi process to support a systematic evaluation of expert opinion (7). As of 2010, 6 appropriate use documents, each encompassing 50 to 200 clinical scenarios, have been published (8–13).

GOALS

The primary goal of the current initiative is to harmonize the separate efforts of the ACR and ACCF as related to cardiovascular imaging and to provide consistent and authoritative guidance to the healthcare community. The joint effort by ACCF and ACR maintains a rigorous, but transparent, methodology that includes the comparative and multimodality imaging features of the ACR approach, as well as the more specific set of clinical presen-

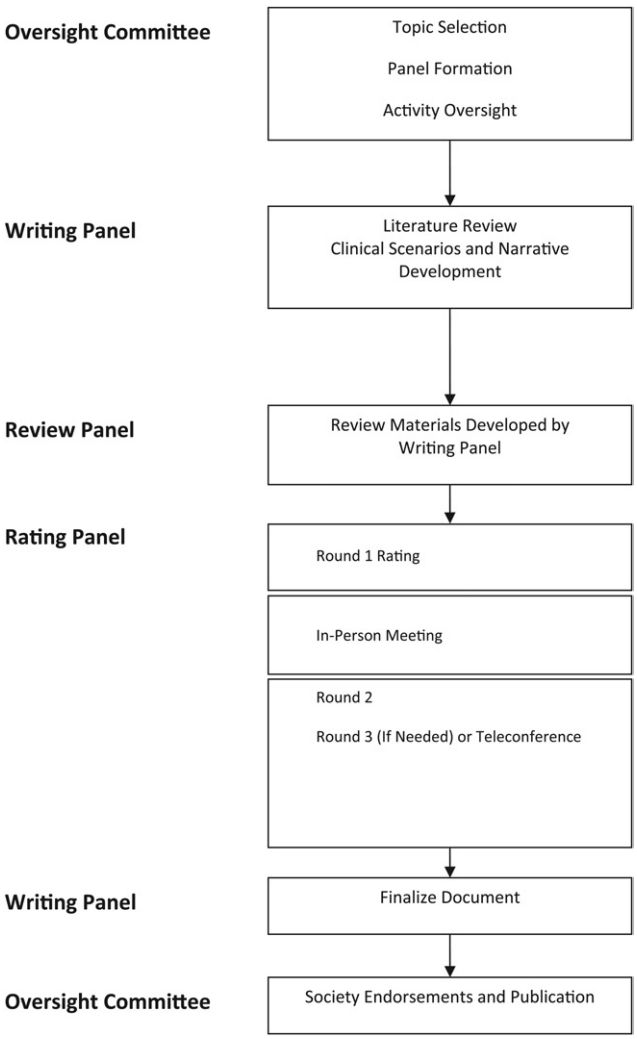

Figure 1. Organizational Structure for ACR/ACCF Appropriateness Criteria Process.