

Reducing Inappropriate Use of Diagnostic Imaging Through the Choosing Wisely Initiative

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In the spring of 2012, the Choosing Wisely (CW) initiative of the American Board of Internal Medicine Foundation (ABIMF) was announced in *JAMA* by Cassel and Guest [1]. Its purpose was to reduce the use of tests and treatments that were felt to be overused or often unnecessary. Before that time, concern had been expressed by both payers and policymakers about the inappropriate use of imaging and other tests and treatments [2,3]. Among the physician community itself, many agreed with this concern [4]. The ABIMF contacted major medical societies in many specialties and asked them to participate. Nine did so initially, and each produced a list of five tests or treatments within its purview that the society believed were usually inappropriate or unnecessary [5]. To its credit, the ACR was one of the original nine. The announcement of the CW initiative and these lists in April 2012 generated favorable publicity for the medical profession [6,7]. Further publicity resulted from the involvement of *Consumer Reports* in the campaign [1].

Over the ensuing years, many more national medical societies joined the CW campaign. It was noted that a number of the tests that had been identified by the societies

as generally inappropriate were various types of imaging examinations [8,9]. But despite the existence of the CW guidelines, studies showed that there continued to be overuse of imaging tests that were inappropriate or, at best, of limited value [10-14]. One possible reason for this could be a lack of awareness of CW among physicians. A survey conducted for the ABIMF in 2014 revealed that 60% of responding physicians had not heard about the campaign, even after they had been prompted with a short description of it [15]. Another possible reason is the difficulty one encounters in trying to access a comprehensive list of the imaging tests that CW has identified as being overused and/or often unnecessary. Our effort focused on this latter possibility.

THE PROBLEM

The best way to obtain information from CW is to go to the website (<http://www.choosingwisely.org>). There, users can select a tab for the list of tests and convert it to a PDF file. The PDF file also contains a discussion of the evidence supporting the recommendations. The list is long (465 items) and contains every recommendation by every participating society. To enable users to home in on what they are interested

in, the site offers various filters. One type of filter is for “topic area,” and one of the topic areas is “radiology.” This presents the user with a list of 64 CW radiology tests. Another type of filter is for “service,” and one of the services listed is “imaging.” This produces a list of 124 imaging tests. One would think filters for “radiology” and “imaging” would cover nearly identical tests, so the large discrepancy is surprising. To add to the confusion, if a user chooses to filter for both “radiology” and “imaging” together, the result is a list of 62 tests. This seems counterintuitive. Moreover, the tests are not arranged in any consistent manner by body system. For example, the first test on the list using the two filters together deals with imaging the carotid arteries. The next deals with imaging dialysis access. The third deals with imaging of telangiectasia. The fourth pertains to imaging the abdomen and the fifth to the lumbar spine. There is no coherent categorization of the tests listed. If a clinician is considering ordering, say, MRI for a patient with anterior knee pain or a PET scan to stage a patient with early breast cancer, there is no way for that physician to know whether such a scenario is covered by CW or where to find it without scrolling through a list of as many as 124 disparate

Table 1. Cardiac Imaging Examinations That Should Generally Not Be Done

Examinations	Patient Status	Organizations
Stress cardiac imaging or coronary angiography in the initial evaluation of patients without cardiac symptoms unless high risk markers are present	asymptomatic	ACC, ASNC, ASE
Radionuclide imaging or other stress imaging as part of the routine followup of asymptomatic patients	asymptomatic	ACC, ASNC
Stress cardiac imaging or advanced noninvasive imaging for preop assessment in patients undergoing low or intermediate risk noncardiac surgery	asymptomatic	ACC, ASNC, ASA, STS, SVM, SCMR
Cardiac imaging in patients at low risk for cardiac death or MI based on history, physical examination, ECG, and cardiac biomarkers	asymptomatic	ASNC
CT coronary angiography for screening asymptomatic patients	asymptomatic	SCCT
MR coronary angiography in the initial evaluation of asymptomatic patients	asymptomatic	SCMR
Invasive coronary angiography to assess risk in asymptomatic patients with no evidence of ischemia on noninvasive testing	asymptomatic	SCAI
Echocardiography for preop or perioperative assessment of patients with no history or symptoms of heart disease	asymptomatic	ASE
Echocardiography as a routine followup for mild asymptomatic valvular disease in adults with no change in signs or symptoms	asymptomatic	ACC, ASE
Repeat echocardiography in stable asymptomatic patients with mitral click in whom previous examination revealed no significant pathology	asymptomatic	ASE
CT coronary calcium scoring for preop evaluation for any surgery, irrespective of patient risk	asymptomatic	SCCT
CT coronary calcium scoring for screening low risk, asymptomatic patients, except those with family history of premature coronary disease	asymptomatic	SCCT
CT coronary angiography in high risk emergency department patients presenting with acute chest pain	chest pain	SCCT
Stress cardiac MR in the initial evaluation of chest pain patients with low pretest probability of coronary disease	chest pain	SCMR
Routine annual stress testing after coronary revascularization without specific clinical indications	known disease	SNM, SCAI
Transesophageal echocardiography to detect cardiac source of embolization if a source has been identified and patient management will not change	known disease	ASE
Echocardiography routinely pre-discharge after cardiac valve replacement surgery	known disease	STS
CT coronary calcium scoring in patients with known coronary disease (e.g. previous PCI or CABG)	known disease	SCCT
MR coronary angiography in symptomatic patients with coronary stents (they create too much artifact)	known disease	SCMR
Invasive coronary angiography in patients post-CABG or post-PCI who are asymptomatic and have normal or mildly abnormal stress tests and stable symptoms not limiting quality of life	known disease	SCAI
Invasive coronary angiography for risk assessment in patients with stable ischemic heart disease who are unwilling to undergo revascularization or who are not candidates based on comorbidities	known disease	SCAI
Any cardiac imaging test involving radiation when only limited benefits are likely	unspecified	ASNC

ACC = American College of Cardiology; ASNC = American Society of Nuclear Cardiology; ASE = American Society of Echocardiography; ASA = American Society of Anesthesiologists; STS = Society of Thoracic Surgeons; SVM = Society for Vascular Medicine; SCMR = Society of Cardiovascular Magnetic Resonance; SCCT = Society of Cardiovascular Computed Tomography; SCAI = Society of Cardiac Angiography and Interventions; SNM = Society of Nuclear Medicine and Molecular Imaging.

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