A recent Editor’s Page entitled “The Morphing of Cardiovascular Specialists” addressed the technological advances and increased utilization of cardiac imaging (1). I opined that this emerging field would require a new skill set, would likely lead to a new subspecialty, and might be populated by individuals with a cardiologic or radiologic background. Implicit in the editorial was the assumption that growth in cardiac imaging was appropriate and beneficial.

An alternate interpretation of the expansion in imaging services has recently surfaced. In March 2003, the Medicare Payment Advisory Commission (MedPAC) reported to Congress that the growth rate per capita for imaging services to Medicare beneficiaries was higher than for other services. In fact, MedPAC reported that the growth rates for imaging procedures was approximately 11%, whereas that for all Medicare Part B services for a similar period was approximately 4.3%. These data were quickly supplemented by evidence that imaging procedures were performed more frequently by non-radiologist physicians using their own equipment in their own offices on their own patients (2). One study completed in the 1990s observed that imaging studies were performed 1.7 to 7.7 times more often by self-referring physicians than those who referred to radiologists (3). In aggregate, these data raised the specter of overutilization related to the incentive for inappropriate self-referral, and in fact were seized upon as evidence that such behavior was actually the case.

Confronted with evidence that imaging grew in excess of other services and was applied more frequently to patients of physicians who provided the service with their own equipment, it is not surprising that many observers immediately concluded that over-utilization was prevalent. However, as is so often the case, things are not always what they (more or less obviously) appear to be. We journal editors encounter this phenomenon frequently in the form of authors who confuse association with casualty. In fact, in-depth analysis provides evidence that factors other than over-utilization and inappropriate self-referral are playing a significant role in the growth of imaging services.

An in-depth analysis of the issues underlying the growth of diagnostic imaging services comes in the form of a report from Koenig et al. (4) of the Lewin Group prepared for the American College of Cardiology. This 44-page document with 164 references utilizes cardiac imaging as a case study of the growth of these procedures in general. The authors examine nearly all facets of the phenomenon drawing on a literature review, the Physician/Supplier Summary Master File (PSSME) from all Medicare Part B carriers, the Standard Analytic File, and the Medicare Hospital Outpatient Prospective Payment System. Although the document is much too lengthy to consider in detail, a summary of the most significant findings is worthy of review.

Koenig et al. (4) initially reviewed the evidence for a potential explanation of the higher use of imaging by physicians who own and operate their own equipment. They found that, although data exist substantiating such greater utilization, they often fail to standardize for differences in the patient populations seen by different physicians, nor do they consider the appropriateness of the procedures. Although self-referral incentives are one possible explanation of this utilization, it is certainly possible that patients in whom imaging is appropriate seek the care of certain types of physicians. Similarly, doctors whose patients require a high volume of imaging procedures may be stimulated to acquire the equipment for their own office. The ability to obtain images during an office visit is attractive because it enables immediate decision-making regarding further management and saves the time and expense of outside referral for the examination. In fact, Koenig et al. (4) cited studies demonstrating that physicians with on-site equipment which they did not own obtained more studies than colleagues who referred to imaging centers. Thus, although the financial benefit inherent in self-referral may be one explanation for increased imaging, there are other equally compelling possible explanations for which some supportive evidence exists.

In considering the reasons for an increase in imaging services, one explanation which immediately springs to mind is that these modalities represent a major advance in patient care. As Koenig et al. (4) observed, age-adjusted deaths from heart disease decreased by 33% between 1980 and 1998. While it is impossible to dissect out the contribution of imaging procedures to this decrease compared with lifestyle changes or either diagnostic and treatment modalities, there can be little doubt that they played a role. The reduced discomfort and risk and the greater accuracy of noninvasive imaging has clearly enabled earlier detection, superior quantitation, and enhanced treatment and monitoring of cardiac disorders. It would seem inappropriate had physicians not embraced imaging modalities and increased their application to patient care.
Koenig et al. (4) also sought to examine the growth in imaging procedures in relation to the utilization of all Medicare Part B sources. They found that when all physician-billed Medicare Part B services were considered, the growth rate was 8.0% between 2001 and 2003. This contrasted with the 4.3% figure reported by MedPAC between 2001 and 2002, which considered only a subset of physician services. In addition, analysis revealed that the rate of growth of imaging procedures performed in physician offices was greater than that performed in the hospital setting. The opposite trend (a greater increase in hospital-based services) was found when all Medicare Part B services were considered. Thus, a change in the site of imaging procedures from hospital to physician offices has occurred in the past several years, and MedPAC attributed approximately 20% of the growth observed to this transition. The increase in imaging procedures during this period, therefore, was not so far out of line with all Medicare Part B services.

Although analyzing cardiac imaging in relation to all Medicare Part B services and accounting for the shift of imaging to physician offices has occurred in the past several years, and MedPAC attributed approximately 20% of the growth observed to this transition. The increase in imaging procedures during this period, therefore, was not so far out of line with all Medicare Part B services.

Likewise, it is obvious that there are numerous advantages to performing imaging at the time of and in the context of a clinical evaluation by a physician familiar with all aspects of a patient's case. That cardiologists are qualified to provide imaging services is verified by their role in developing, validating, and documenting the optimal use of these procedures. Cardiologists have been in the forefront of delivering these services and educating others in their application. The data generated by Koenig et al. (4) support the concept that the growth in these services is not inordinate, and that factors other than over-utilization to generate income are driving forces of this growth. For those who have interpreted the growth in imaging as a manifestation of the worst dangers of self-referral, it should be clear that things are not always what they obviously seem to be.

With regard to the issue of “turf wars” among physicians over cardiac imaging procedures, I cling to my original position. I believe that the optimal provision of these services will require both cardiologic and radiologic skills. This can be achieved by collaboration or by the acquisition of cardiologic skills by radiologists or vice versa. The individuals who will own the imaging turf will be those who have broad-based skills in all aspects of cardiology and imaging.

Address correspondence to: Anthony N. DeMaria, MD, MACC, Editor-in-Chief, Journal of the American College of Cardiology, 3655 Nobel Drive, Suite 400, San Diego, California 92122. E-mail: ademaria@acc.org.

REFERENCES