The Inappropriate Use of Imaging Studies: A Report of the 2004 Intersociety Conference

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The participants of the 2004 Intersociety Conference met to discuss the growing problem of self-referral. The United States spends more of its gross national product on health care than other countries, especially Japan and those in Western Europe. Imaging accounts for a large and growing portion of those costs. Despite spending so much on health care, the United States ranks relatively low in measures of national health, including such parameters as infant mortality and even life expectancy. Because the federal government must keep health care expenditures to a "sustainable growth rate," increases in use are likely to be accompanied by decreases in reimbursement per case. Thus, conference participants agreed that the real problem is inappropriate use, which may arise from (1) ignorance of what specific imaging studies are needed when, (2) high public expectations for imaging tests, (3) the fear of liability for a missed diagnosis (defensive medicine), and (4) self-referral. The Stark laws have been largely ineffective in preventing self-referral because there are many loopholes, and the laws are inconsistently enforced. Among the many potential solutions are the education of our clinical colleagues on appropriateness criteria; the education of the public on the costs of inappropriate use; tort reform; and working with third-party payers, especially the private insurance industry, to develop vigorous privileging programs, to require precertification for self-referred studies, or to establish differential payments for self-referred and non-self-referred imaging.

Key Words: Self-referral, appropriate use, Stark laws, sustainable growth rate, reimbursement

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The Intersociety Conference was established by the ACR in 1979 to promote collegiality within radiology, foster and encourage communication among national radiologic societies, and make recommendations on areas of concern. The topic of each meeting of the Intersociety Conference is generated by its executive committee. Fifty-three professional radiology societies participate in the Intersociety Conference, including both diagnostic and interventional radiology, radiation oncology, and radiologic physics.

The Intersociety Conference met July 30 through August 1, 2004, in Quebec City, Canada, to discuss the effect self-referral has on the appropriate use of imaging examinations and image-guided procedures. Eighty-eight members and executive directors participated in the conference.

HIGH COST OF HEALTH CARE

The United States spends more money on health care than any other country in the world. Even when expressed as a fraction of the country's gross national product (GNP), the United States is clearly the most expensive. In 2001, the United States spent 13.9% of its GNP on health care, compared with 8.5% for the European Union and 7.6% for Japan [1,2]. Furthermore, these health care expenditures have continued to rise. Growth in health care spending has continued to rise at more than twice the rate of growth of the GNP, such that it consumed 14.9% of the GNP in 2002 [3]. The annual growth rate for health care costs is 10%, compared with 4% for wages and only 3% for the GNP. Thus, health care costs as a portion of the GNP continue to rise. By 2003, health care expenditures had grown to 15.3% of GNP and are projected to reach 18.4% in 10 years.

These rising costs for health are passed on to consum-

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ers and to employers. In 2001, aggregate private health insurance premiums rose 10.3%, and they rose 10.9% in 2002 [3]. In the global economy in which we live, American businesses are in direct competition with foreign manufacturers and service providers. High costs for health care put U.S. companies at a competitive disadvantage. Clearly, we cannot continue this growth rate.

The Balanced Budget Act of 1997 requires a target for the annual rate of growth in spending [4]. This "sustainable growth rate" became a way to control Medicare spending. The sustainable growth rate is determined by several factors, but among them are the number of people enrolled in Medicare and the per capita gross domestic product adjusted for inflation. Thus, increases in health care expenditures must be held to about 2% per year. Because the total amount spent on health care is a function of both the payment per case and the number of cases, they are interdependent. If total costs are to remain stable, any increase in use must be accompanied by a decrease in payment per case:

$$\text{number of cases} \times \text{cost per case} = \text{total cost}.$$

The federal government regulates this through the conversion factor used to calculate Medicare payments. This is a particularly important factor, because private payers often take their cue from the Medicare fee schedule.

Despite these enormous expenditures for health care, the United States does not have an enviable record of health statistics. Among the 192 World Health Organization member states, the United States ranks 32nd in infant mortality and 29th in life expectancy [5.] The United States is especially weak in case coordination, medical errors, overall physician ratings, and answering questions from patients.

INAPPROPRIATE USE

Inappropriate imaging use adds to health care costs without improving the quality of health care. According to Fisher *et al.* [6,7], approximately one-third of health care spending is duplicative, unhelpful, or makes patients worse. Not only do these unnecessary imaging studies seldom reveal the cause of a patient's complaint, but they may reveal abnormalities that do not affect health but require further imaging or interventional procedures to clarify.

Causes of Inappropriate Use

The inappropriate use of imaging tests arises from several causes [8]. Many practicing physicians have not been able to keep up with current indications for imaging tests. Busy with developments in their own fields, these physicians are not aware of changing practice with regard to imaging. Common abuses include the frequent use of abdominal computed tomography (CT) examinations for abdominal pain, excretory urography for a suspected renal mass, and any imaging for chronic back pain. Physicians responsible for patients with a broad range of potential abnormalities, such as family practitioners or other primary care physicians, may be most prone to order inappropriate imaging tests because of a lack of knowledge [9].

The success of imaging, especially CT and magnetic resonance imaging (MRI), at detecting and often diagnosing a wide range of lesions has led the public to expect such examinations when they encounter the health system. The positive attributes of these cross-sectional imaging modalities are widely reported in the lay press, and patients demand access to them.

The success of our health care system has raised the public's expectations to the point that an accurate diagnosis and complete recovery are considered the standard of care. This places physicians in the difficult position of making an accurate diagnosis on every patient and missing no significant pathology. Not infrequently, this includes satisfying patients' expectations for imaging studies. Thus, it is not surprising that referring physicians order imaging tests, even when the indications seem minimal. Fear of liability further contributes to this overuse of imaging tests. An unnecessary examination, even when negative, often reassures a patient. Although the health care costs may be increased, there may be no negative consequence for the ordering physician. On the other hand, failure to order an imaging study risks a malpractice suit should an abnormality that might have been detected by the study be subsequently discovered.

The fourth and most egregious cause of inappropriate use arises when an ordering physician has a financial interest in the entity performing the examination. This "self-referral" is increasingly seen when physicians own imaging equipment or when they refer patients to imaging centers in which they hold equity positions [10]. When a physician interviews and/or examines a patient, he or she may decide that an imaging test is needed to clarify or confirm the diagnosis. Typically, this physician refers the patient to radiology for such testing. However, if the physician elects to perform the examination or procedure rather than referring the patient elsewhere, he or she is practicing self-referral.

The formal definition of self-referral originates in the federal Stark laws, named for their progenitor, Representative Fortney "Pete" Stark of California. Stark I, enacted in 1989, was limited to clinical laboratory services. In 1993, Stark II extended this to other designated health services, including radiology. These laws prohibit a physician from referring a patient to an entity for "designated health services" for which Medicare might otherwise pay