

Thanes of hazard: moral failings of imaging self-referral practitioners

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"And oftentimes, to win us to our harm, The instruments of darkness tell us truths, Win us with honest trifles, To betray's in deepest consequence."

- William Shakespeare, Macbeth

In the mid-20th century, the term 'moral hazard' was coined by insurance companies to describe the strange and unexpected behavior changes of individuals after obtaining insurance coverage. Compared to drivers without insurance, drivers with insurance tended to have higher rates of traffic violations of all types, including more speeding tickets and at-fault accidents. Why would this happen? How did insurance coverage lead to more risky behavior?

The answer is complicated. But at the heart of the answer lies the principle of risks and rewards. Simply put: we seek to increase rewards and reduce risks. Reward seeking behavior thus increases when the reward is very high, risk is very low or both. By defining moral hazard, the insurance companies of the last century had uncovered a fundamental manifestation of human nature; uninsured drivers had been influenced to drive safely based in part on the financial risk of a traffic accident, the costs of damage to their vehicle, potential medical bills, lawsuits, etc. When the risk was significantly reduced, assumed instead by the insurance company, the reward seeking behavior of reckless driving became more prevalent in the lower risk environment. So for a newly insured driver, the benefit of swerving through traffic to get to a lunch appointment on time outweighed the financial risks of an accident and subsequent costly damage to the car.

Over the ensuing decades, moral hazard has been validated in many other human activities, from skydiving to skiing to sexual practices [1,2]. Even children demonstrate moral hazard: children who wear protective equipment while bike riding engage in more risky behavior than without protective equipment [3]. Predictably then, as a principally human endeavor, moral hazard is pervasive too in medicine. Few examples better illustrate moral hazard in medical practice than self-referral. Self-referral is defined as the situation in which a physician prescribes a test or treatment from which the prescribing physician stands to profit. In the case of imaging self-referral, the physician ordering the imaging exam collects a payment each time a patient receives an imaging exam. This arrangement, taken alone, is not necessarily unethical. Physicians make decisions every day that require them to choose the patient's interests, to do no harm, above any considerations of personal profit. For example, a surgeon may recommend against an expensive procedure because it is in the best interest of the patient, despite that performing the procedure would be personally profitable. Ultimately, the risks of unnecessary harm, violating the standard of care, legal ramifications, all easily outweigh the financial reward.

But imaging self-referral presents a different, and particularly challenging, moral



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problem to clinicians. The rewards are exceedingly high: lucrative financial payment and potentially useful diagnostic information. The risks, on balance, are very low: no additional physician effort or time, no immediate harm to the patient, rarely denied insurance claims. The long-term risks of increased radiationexposure by computed tomography (CT) have only recently been widely publicized. Severe allergic reactions to contrast material used in CT and MRI remain very rare. It is easy to see, then, how a physician who has the ability to self-refer patients for medical imaging might fall victim to moral hazard: every imaging exam ordered is money in the bank. Unlike an unnecessary surgical procedure, there are no additional opportunity costs for the physician, no concerns for complications or adverse outcomes, no increased liabilities or malpractice risks. Furthermore, medical imaging is often needed to inform clinical management, so it is easy to justify that the test was indicated, and difficult to prove it was not.

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Imaging self-referral arrangements raise the ultimate question: do self-referring physicians order more imaging studies? Do they succumb to the failings of moral hazard and behave differently than those who do not self-refer? The answer, according to dozens of peerreviewed publications, is overwhelmingly yes. As first published in the New England Journal of Medicine in the late 1980s, when insurance imaging billing claims were correlated to physicians with financial interest in medical imaging, an 11-fold increase in imaging utilization was observed by the self-referring clinicians. [4] In another study of the Medicare population, imaging exams were ordered up to eight-times more often by self-referring clinicians who stood to profit from the imaging tests ordered [5]. Investigating the General Accounting Office (GAO) data found that imaging utilization increased by over fivefold in self-referral physician practices [6]. There have been dozens more studies, many with different methodologies, which have come to the same conclusions: imaging self-referral leads to abuse, overutilization and jeopardizes the financial health of the medical system.

The imaging self-referral revelations by these early papers did not go unnoticed and congress reacted with action. Led by Rep. Pete Stark (D-CA), the Medicare fraud-and-abuse legislation was drafted which aimed to curb the practice of self-referral. Known as the 'Stark' legislation, it was designed to directly end the practice of physicians referring patients to their own imaging centers or to centers who paid referring physicians a 'kickback' for referrals. Unfortunately, the law was quickly weakened by the 'in-office exemption,' among others, which allowed physicians to continue to refer, perform and bill for imaging that occurred in their office. Not only did the law's passage not slow the growth of self-referral, the practice increased. In fact, by the late 1990s and early 2000s, imaging utilization skyrocketed and self-referral was the largest contributor to the increasing costs of imaging to the healthcare system. Imaging device manufacturers, emboldened by the sales opportunities presented by marketing imaging equipment to office-based clinical practices, assisted groups in creating elaborate workaround arrangements, some promising creative equipment leasing arrangements and smaller less expensive imaging devices that "could turn a profit in as little as five scans per day" [7].

Less than a decade after the passage of the Stark laws the number of imaging facilities owned by private office clinician physicians increased 263%, and medical imaging expenditures grew at five-times the rate of medical inflation [7]. The GAO weighed in with a landmark report, concluding in part: "providers who began to self-refer imaging and substantially increased their referrals relative to other providers and financial incentives may be a major factor driving the increase in referrals" [8]. But any attempts by legislators or smaller subspecialty physician providers to end the practice, and in particular, eliminate the in-office exemption that weaken the language of the Stark legislation, have been crushed by powerful lobbying efforts, led by the American Medical Association. The Stark law had failed. To add insult to injury, the ownership and leasing arrangements of imaging centers with referring clinicians had become so intentionally convoluted, often with multiple corporate and private stakeholders, Medicare and insurance payers had no system in place to understand who owned or profited from the estimated US\$1.6 billion in annual spending by these facilities [9]. The GAO said as much in a statement on the issue "neither the Department of Health and Human Services nor CMS appears to recognize the need to monitor the self-referral of advanced imaging services on an ongoing basis and determine those services that may be inappropriate, unnecessary or potentially harmful to beneficiaries" [8].

In 2007, a second broad-based legislative maneuver, the Deficit Reduction Act, was enacted to curb the exponential costs of medical imaging. Where the Stark Law was a policy scalpel, attempting to cut out only the self-referring physicians, the Deficit Reduction Act was a policy sledgehammer, bringing across-the-board cuts of up to 40% for all advanced medical imaging examinations [10]. The initial impact was impressive – a nearly 13% reduction in medical imaging expenditure [8]. But rather than a policy victory, the underlying cause of the problem still continued undeterred - despite the cut in payment, utilization of self-referred medical imaging again increased. Why the increase? It turned out that those with the ability to self-refer simply ordered more imaging examinations to make up for the loss in profit due to the reimbursement cuts. As might be expected, the excess imaging exams were not medically necessary, as reported in a 2010 study that found between 20 and 50% of advanced medical imaging failed to provide information that improves patient care [11]. More recently, a series of publications looked at the rates of negative MRI exams, and found that exams that had no clinically relevant findings were up to 33% more likely when ordered by self-referring physicians [12-14]. Wasteful self-referred imaging exams are now estimated to cost \$16 billion a year. The problem of overutilization of medical imaging via self-referral for profit had indeed gotten much worse.

The overwhelming balance of literature regarding imaging self-referral demonstrates the widespread and unequivocal abuse, serving to drive up costs of healthcare and ultimately adversely impacting the patients we are entrusted to serve. Today, imaging self-referral for profit is pervasive: orthopedic surgeons, cardiologists, oncologists and other clinicians, own or lease time on MRI, CT, nuclear medicine or PET scanners - this is done for the express purpose of supplementing income, arranged to maximize profit, targeting the most expensive imaging procedures and using precise scheduling to ensure income forecasts. For example, an oncologist practice with ownership stake in a PET scanner will know that Medicare allows payment for a PET scan four-times per year at maximum in management of a patient with a par-

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ticular type of malignancy; whether or not the patient needs the scan clinically, this oncologist group will reflexively order the PET scans for this patient, on their equipment, every 3 months, *ad infinitum*.

What can be done? Clearly, the time is long past due for a definitive solution to the problem of selfreferral, one that eliminates the underlying driving force behind the practice, removing the possibility of moral hazard and greed inherent in the current feefor-service arrangement. Given the history of the selfreferral problem, and the extent of the abuse, it is easy to doubt any proffered solution. The Affordable Care Act, though not fully implemented, may serve as the next attempt to curb the practice should capitation (annual lump sum payments to physicians on a per patient basis) or bundled payments (single payment to a physician for treating a particular diagnosis in a patient) be implemented. Ultimately, however, the final act of the imaging self-referral saga is yet unwritten - the preferred outcome is via immediate action toward eliminating the practice with an improved medical payment scheme removing the temptation of fee-for-service moral hazard for clinicians. The alternative, in which medicine for profit and greed is allowed to fuel a further financial unraveling of the healthcare system, must be avoided at all costs.

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