**Annotated Bibliography**

**Bioethics Research Elective**

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**February 16, 2014**

**Topic: The Problem of Overutilization and Self-referral in Medicine**

1. **Levin, David C. "The 2005 Robert D. Moreton Lecture: The Inappropriate Utilization of Imaging Through Self-Referral." Journal of the American College of Radiology 3.2 (2006): 90-95.**

* Dr. David Levin writes this article from the point of view of a radiologist. The article discusses the rapid increase in medical imaging and some of the reasons why such an explosion of medical imaging has occurred in the last ten to twenty years. One specific reason discussed is the emergence of non-radiologist physicians self-referring their own patients for diagnostic imaging to their own imaging centers and or machines. The paper cites studies performed by the US General Accounting Office an arm of the US Congress, which highlights non-radiologist physicians on average have higher imaging utilization rates in comparison to radiologists. He cites research which shows non-radiologist physicians ultimately over-utilize imaging when increased imaging equals increased personal revenue and profit. There are several ethical dilemmas relating to this paper. First, as medical providers we should not be exposing our patients to unnecessary imaging studies for mere profit. Many imaging studies are not risk free especially when considering ionizing radiation exposure. Second, non-radiologist physicians should not be interpreting imaging modalities in which they have not been formally trained. Providing patients with subpar diagnostic imaging is unacceptable, as studies have proven radiologist and even radiology residents are more accurate with diagnoses when compared with experienced non-radiologist physicians. The last ethical argument is how such physician practices will affect our ailing healthcare system and the population that relies on the system. Such haphazard practices unchecked will increase healthcare cost, which will ultimately burden those who truly cannot afford it.
* This article has a fair assessment of what the current problem is and lays out several solutions, which may curb current practices. One criticism may be that he is a radiologist himself and he highlights non-radiologists imaging practices. Though overall he provides actual data from current studies, which support his claims. In addition, he sets forth 5-6 solutions that allow non-radiologist to continue interpreting their own images. At the same time these solutions require them to follow the same quality and training standards as ACR accredited imaging centers so that patients receive only useful and necessary imaging.

1. **Hendee, W. R. "Addressing Overutilization in Medical Imaging.” Radiology 257.1 (2010): 240-45.**

* The authors discuss the major causes and effects of medical imaging overutilization. First the factors that lead to overutilization are discussed. Again the fee-for-service system is considered one of the main culprits as it shapes physician-practice behaviors. There is a clear incentive to do more, even if it does not have particular benefits. Second, defensive-medicine is considered a major reason for overutilization of imaging, as providers are afraid of legal reprisal. The authors cite that up to twenty-five percent of studies may be due to defensive medicine, leading to unnecessary costs and risks to patients. The third reason has been a recent trend towards non-radiologist physicians acquiring scanners to image their own patients often as a source of revenue. In addition, most clinicians do not utilize practice and appropriateness guidelines, which have been created. Ignoring these guidelines leads to many repeat and unnecessary studies. The result of these factors ultimately leads to added healthcare cost which further weakens the already unsteady system.
* Many feel radiologists should fix the issue of medical imaging overutilization. This expectation is unrealistic as the volume of studies continues to increase a practicing radiologist cannot screen and evaluate every study for appropriateness. It should however remain a radiologist’s responsibility to create and publicize practice and appropriateness guidelines for imaging studies. Though such guidelines are present they are not widely used by most clinicians. In addition, non-radiologist physicians should not be allowed to use imaging studies and scanners as a method of revenue. Imaging centers should be run under the supervision of radiologist as they have five years of training on the appropriateness of imaging utilization. While this will not completely solve the problem of self-referral it will curb the issue. Ultimately, for more efficient and genuine utilization of imaging studies to occur there needs to be systemic changes. First changes in payment models need to occur, second clinicians need to collaborate to ensure testing which occurs will provide benefit to the patient rather than the clinician.

1. **Roy, W.R. "Overutilization of Health Care." Bull N Y Acad Med 54.1 (1978): 132-38.**

This article is included mainly to provide a historical perspective on overutilization of healthcare and increasing healthcare cost. The author discusses how increasing cost are causing government implement regulations which aim to restrict cost and overutilization. The author is against government regulations. They state allowing government regulations would be too administratively cumbersome in the long-term. In addition, the author is convinced allowing government to take a role in the healthcare industry will lead to a monopoly in healthcare and produce substandard medicine. The author states overutilization can be fixed by providing incentives for efficiency/effectiveness to private medical organizations, which will create true competition.

Ironically, while this article is from the seventies many of the arguments and issues have not changed in nature. While this author felt private insurance was necessary for true competition, it has become clear in the last decade that a purely free-market private health insurance industry is neither great for efficiency or effectiveness as the author was hoping. Looking back, one can justifiably argue that private insurance and the fee-for service model only led to ever-increasing healthcare utilization.

1. **Sarma A, Heilbrun ME. A medical student perspective on self-referral and overutilization in radiology: application of the four core principles of medical ethics. Journal of the American College of Radiology: JACR. 2012;9(4):251.**

* This article is written from the perspective of a medical student who attempts to analyze whether self-referral is an ethical practice by applying four ethical principles to the topic. The four principles applied are autonomy, non-maleficence, beneficence, and justice. Patient autonomy has become more important over the years and medicine has trended away from the paternalistic attitudes, which once existed. But even today when it comes to imaging studies, when a physician recommends a study most patients defer to their care provider, which in most cases makes patient autonomy in this scenario irrelevant. Thus making it difficult to say whether or not patient autonomy is violated by self-referral. Second, non-maleficence is discussed and indeed this principle is violated when discussing self-referral. There are several reasons for this as studies have shown self-referral does indeed lead to unnecessary studies, which result in financial burden, procedure anxiety, and often exposure to ionizing radiation for the patient. In addition, the author concludes beneficence is violated as more imaging studies do not necessarily mean better health outcomes. While self-referral of imaging may provide convenience it does not truly improve overall patient well-being. Lastly, the author states the principle of distributive justice is also violated as over-utilization of imaging studies causes inappropriate use of resources that could be used for other medical purposes.
* This article highlights why this topic should be approached objectively, as when it is not approached objectively it becomes a blame game between radiologist and non-radiologist. From an ethical perspective self-referral whether it be non-radiologist or radiologist should be avoided. The goal for all imaging studies should remain to benefit the patient and avoid conflicts of interest. While there are some benefits of self-referral, it ultimately erodes the trust between patient and provider.

1. **Hillman BJ, Joseph CA, Mabry MR, Sunshine JH, Kennedy SD, Noether M. Frequency and costs of diagnostic imaging in office practice--a comparison of self-referring and radiologist-referring physicians. The New England journal of medicine. 1990;323(23):1604-8.**

* This is an article from the New England Journal of Medicine, it looks at imaging utilization rates between self-referring doctors and doctors whom refer to radiologist. Though this article is from the early 1990’s it examines a large number of practitioners, about 6,500 physicians and close to 65,000 patient encounters. Practice behaviors are compared for four common medical complaints, which included upper respiratory illness, lower back pain, pregnancy, and difficulty urinating. The authors conclude non-radiologist whom refer to their own imaging facilities were four to five times more likely to request imaging studies when compared with outside radiologists. The authors do not have a clear explanation as to why this is but they postulate several reasons. One of the biggest reasons being financial incentive as imaging remains a source of cash revenue. In addition, poor understanding of imaging indications by non-radiologist may play a role in over-utilization of imaging in this group of providers. Authors conclude, despite increased utilization of imaging by non-radiologist self-referring physicians they cannot conclude whether our not this actually provides better patient care which is really the main question/concern at hand.
* This article highlights how self-referral clouds clinical judgment. Personal gain is to blame for this. These authors examine self-referral practices from several different perspectives, and all of these perspectives reveal a tendency to over-image when there is self-interest. While physicians do not intend to harm their patients, haphazard ordering practices inevitably cause the patient a financial burden, radiation exposure, and a loss of patient-provider trust.

1. **Mitchell JM. Urologists' use of intensity-modulated radiation therapy for prostate cancer. The New England journal of medicine. 2013;369(17):1629-37.**

* This article examines changes in practice behaviors when urologists incorporate radiation therapy into their private groups. While physicians are banned from referring patients to their own practice, radiation therapy is an exception as it is considered an “in-office ancillary service” by current federal law. This ultimately means urologists can diagnose prostate cancer and then refer to themselves for radiation therapy. Though, ideally a well-trained radiation oncologist should be providing radiation therapy. A few urologists with entrepreneurial spirit discovered the financial gain that comes with providing radiation therapy themselves rather than deferring to radiation oncologists. Unfortunately, this realization by urologist has led to over-diagnosis and over-utilization of radiation therapy. This NEJM article examined Medicare claims from 2005 to 2010 from urologists in three different practice settings. The first category consisted of 35 groups with self-referring urologists and the second category consisted of 35 groups with non-self-referring urologists. The third category was urologists at National Comprehensive Cancer Network centers. The author examines practices between these groups before and after they obtained in-house radiation therapy. The results reveal a close to twenty-percent increase in the use of radiation therapy by self-referring urologists in private practice when compared with their non-self-referring counterparts. In addition, the non-self-referrers at National cancer centers had almost no increase in radiation therapy utilization.
* This is ethically and professionally alarming as financial profit is being placed before the patients best interest. Perhaps only allowing radiation oncologist to perform radiation therapy would curb this issue. This may encourage all types of providers to refer to radiation oncologists only when it is absolutely necessary. Radiation oncologists are less likely to self-refer and abuse the system as they rely on outside providers (PCP/urologists/oncologist) for referrals. Though this article should be viewed with some skepticism as it was funded by the American Society for Radiation Oncology (ASTRO) who may also have personal interests at stake ex: (prevent urologists from encroaching on their field/procedures).

1. **Mitchell JM. Urologists' self-referral for pathology of biopsy specimens linked to increased use and lower prostate cancer detection. Health affairs (Project Hope). 2012; 31(4):741-9.**

* This article examines the urologists’ prostate biopsy self-referral practices that have been documented to increase in quantity without significant increase in prostate cancer detection rates. Urologists have assumed this practice/procedure, as biopsy/pathology services are not considered self-referral under the “out of office ancillary services exemption” this legally permits urologists to self-refer their own patients for biopsy with clear personal financial incentive. Advanced imaging has also been used in a similar fashion by urologists. Authors of this study compare self-referring physicians to non-self-referrers based on Medicare billing in 2007. Self-referring physicians were found to bill Medicare for 72 % more lesions when compared with their counterparts. At the same time prostate biopsy detection rates in the more aggressive self-referring group did not equate to increase in prostate cancer detection rates, in-fact detection rates were found to be lower. Urologists receive close to ~$240 for every prostate biopsy they submit to Medicare. The more biopsies performed the more they earn. This financial incentive has encouraged urologists to establish their own labs and contract with specific pathologist to maximize their earnings from surgical pathology procedures. There seems to be a clear solution, which is to prevent practicing physicians such as urologists from being financially linked to ancillary services such as pathology, radiology, or radiation oncology. These services should be left to those specific fields. That is not to say there isn’t any abuse of services amongst those specialties; but those ancillary service providers have an ordering clinician who should ideally keep ancillary service recommendations in-check. In an ideal world, a clinician should offer ancillary services in which they have little to no personal financial gain. If urologists were not paid for MRI’s and biopsies they would likely be more judicious in their order practices, thus radiologist and pathologist would only provide interpretations that were deemed clinically necessary.

1. **Blaivas M, Lyon M. Frequency of radiology self-referral in abdominal computed tomographic scans and the implied cost. The American journal of emergency medicine. 2007;25(4):396-9.**

* This article is written from the perspective of emergency medicine physicians. They examine how radiology follow-up imaging recommendations lead to a form of self-referral. The authors are emergency room physicians in the department of emergency ultrasound, who have personal interest in allowing clinicians to perform and interpret their own US images. They postulate that clinicians such as themselves are unfairly targeted when it comes to over-utilization of medical imaging studies. This study surveys radiologists follow-up recommendations on CT abdomens ordered at one academic emergency department. Their study reveals radiologist often recommended follow-up studies such as MRI or ultrasound, which the authors equate to self-referral. They discovered out of the 785 abdominal CTs performed 246 radiology reports recommended follow-up studies. There is no examination of whether or not those recommendations were followed or not. While there is certainly the potential for abuse from hospital radiology departments in regards to over-utilization, I do not believe this a matter of self-referral. The reasoning behind this is a radiology department unlike the emergency department cannot order tests on a patient. They can only provide a recommendation, which the clinician who is actually seeing the patient can take into consideration and decide if it is needed to aid in further diagnosis. Certainly, there are radiologist who over-recommend follow-up studies, but this is very different than if an emergency room physician who has only months of image interpreting experience orders his or her own bedside ultrasound for which they will financially gain from. The difference between these two examples is the radiologists imaging practices go checked by the ordering clinician but the converse is not true. Overall, the article creates a divide between ER doctors and radiologist by examining a small number of studies at a single medical center and attempts to generalize the results to thousands of hospitals across the country. Though such a study would provide useful information if conducted at a variety of medical centers across different regions of the country.

1. **Lungren MP, Paxton BE, Kilani RK. Imaging self-referral: here we go again. AJR American journal of roentgenology. 2013;201(4):W658.**

* This is a letter-in-response from the American Journal of Radiology to an article that was authored by a non-radiologist who is a proponent of imaging self-referral. The initial paper cited several arguments in favor of self-referral practices. Many of the arguments have been discussed previously but this paper specifically mentions aspects such as patient convenience and cost savings as major benefits to clinician-owned imaging centers. Though they do not have large-scale studies to back their claims. On the other hand the letter-in-response goes through and refutes most of the claims of this paper. They cite several major studies that illustrate clinician-owned imaging equipment inevitably results in over-utilization and increased cost. The letter highlights that despite cost-cutting measures such as the Deficit Reduction Act, Medicare payments for imaging continue to increase as self-referring imaging centers are ever-increasing and non-radiologist run imaging centers simply meet billing targets by ordering more studies. The article which is written by a radiologist describes how most radiologist do not have this “opportunity” to self-refer, which makes radiologists a neutral player. Overall, I chose this article to illustrate how the subject of medical imaging self-referral often becomes a blame-game between radiologist and non-radiologist. Each side comes up with studies that often have many weaknesses but are cited simply because they support their side of the argument. I believe this situation illustrates how denial and financial incentive can lead disagreements amongst providers and which in the end unfortunately shifts the focus away from patients.

1. **Reicher MA. Self-dealing in medical imaging: call for action. Journal of the American College of Radiology : JACR. 2007;4(4):202-7.**

* This article discusses the ills of self-dealing in medical imaging. The author provides data for why self-dealing is destructive for our healthcare system and medical profession. Reicher states this “self-dealing” is not an issue of “specialty turf wars” rather it is an issue of business practices and medical ethics. Surprisingly, this is one of the very few articles that mentioned the word “ethics” in regards to self-dealing/self-referring; I found this to be ironic and unfortunate! The author states if this self-dealing practice was observed in any other profession the public would be outraged. Also, once the general public understands this unethical business practice it will degrade the patient provider relationship even further. The author uses the MLB steroid scandal as an example. The action of a few greedy baseball players led to the sullying of baseball players as a group. The author states if we do not take action now a similar scenario will arise; unethical practices by a minority of physicians will sully the profession as a whole. Reicher underlines how we have made half-hearted attempts to fix this problem such as the Stark Law. The Stark Law prevents physician self-referrals but the law is riddled with legal and business loopholes that permit opportunistic physicians to circumvent the law for personal/financial gain. Thankfully, this author postulates solutions in addition to highlighting the current problem. Reicher suggest physicians to take a stand and go to their regulatory bodies and ask them to prevent such self-injurious practices. He specifically suggests making the discussion about ethics rather than turf-wars. In addition, he suggests the ACR the regulatory body that accredits imaging centers to add an ethics component to their accreditation criteria. Such additions would prevent much of the self-dealing which is plaguing our system and causing professional conflicts.

**My Summary/Ethical Lesson I learned from this process:**

* My interest in the topic of self-referral and over-utilization in medicine began in the third year of medical school. On one of my rotations, I overheard one clinician accusing another clinician of self-referring patients to his own imaging center. The conversation began jovial and progressed to a more aggressive/accusatory conversation. Prior to that discussion I was naive to the topic and assumed the legal system/government would prevent such unethical practices. At the same time, I observed that clinicians were quick to blame each other rather than address or even discuss systemic problems. The literature also took a similar approach. Each specialty has been quick to publish studies that support their medical practices, irrespective of the facts. Unfortunately, most of the studies fail to offer solutions; rather they aim to justify their behaviors. In addition, it was surprising to see how ethics was not a part of the discussion in most of these articles. The absence of this discussion is troublesome. Because when this topic is examined from an ethical perspective it becomes clear that physicians with financial incentive should not be able to self-refer ancillary services. Regardless of ones intentions, self-referral leads down a slippery slope, a slope that has the potential to cause much harm to our profession and more importantly to our patients.