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# The Commodity-Proof Radiologist

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From mid-September through mid-November 2015, I, the lead author, traveled throughout England interviewing British radiologists. (To view a video of these interviews, see the online version of this article at: http://dx.doi.org/10.1016/j.jacr.2016.11.001.) My purpose was to compare how radiology is practiced in the United States with how it is practiced in England. Perhaps, I thought, in doing so I could identify lessons American radiologists could learn and then import into their own practices and departments. After all, the American health care system is experiencing fundamental changes at the moment with respect to payment reform. So I wanted to learn all I could about the system in England and share my findings with ACR members.

Because my experience consisted entirely of interviewing hospital-based diagnostic radiologists, I will confine most of this article to dealing with that group and their position vis-à-vis American hospital-based diagnostic radiologists. As my interviews ran their course, one aspect of UK diagnostic imaging seemed appropriate to compare with American radiology at the Imaging 3.0® crossroads: the high level of value referring clinicians place on the diagnostic radiologist's diagnosis.

There are as many similarities as there are differences between the two countries when it comes to health care coordination. But one trait of diagnostic radiology as it is practiced in England stands out: radiologists in that country are, in most cases and no matter the setting, indispensable members of the patient care team. In other words, despite all of the pressures threatening to move the focus from the value English radiologists provide to the volume of work they produce, up to this point they have provided a high-value service. This shift away from providing a valued service can be termed "commoditization," and there is no doubt that the specter of commoditization looms over radiologists in England. Despite this danger, however, and notwithstanding gains made in the past few years by radiology in the United States, American diagnostic radiologists are not typically viewed as consultants by referring physicians quite the way they are in England.

## CHALLENGES IN THE SYSTEM

Before any comparison can be drawn between American and English diagnostic radiologists, an examination must be made of the aforementioned pressures on radiology in England. Although American radiologists have experienced (and to some extent begun to reverse) many of the same stresses conspiring to tax British radiology—chief among them the rapid increase of imaging utilization—the operational circumstances under which radiology is practiced in the two countries are very different.

Because of this, any inspiration American diagnostic radiologists hope to gain from their overseas counterparts is tempered by the fact that systemic pressures in the United States constrain diagnostic radiologists' ability to deliver clinical opinions. First and foremost, diagnostic radiologists in this country are incentivized, primarily through their various reimbursement schemes, to complete their work lists and not necessarily act as gatekeepers of quality. Although the tide is beginning to turn with the CMS push toward value-based medicine, many US diagnostic radiologists have an uphill battle to fight when it comes to referring providers seeking out their clinical opinions.

For English diagnostic radiologists' part, it must be noted that although their health care system is structured in such a way as to encourage them to provide their clinical opinions either in person or by way of their reports, backlogs in UK hospitals and clinics present a serious issue. In other words, it is not as though the tighter coordination of care in the UK has resulted in streamlined services to the extent that there are not profound backlogs. A major reason for this, however, is that the United Kingdom trains significantly fewer radiologists per capita than does the United States. Indeed, a 2014 census of British clinical radiologists conducted by the Royal College of Radiologists (RCR) found that a severe shortage of radiologists exists [1]. Because of this, it is possible that tighter coordination with referring clinicians would not


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result in the same level of backlogs among American radiologists.

The responsibility for backlogs is shared by all of British medicine, including radiology. At a time when imaging utilization is escalating in the United Kingdom, British medical educators cannot keep pace with patient waiting lists. According to the RCR report, between 2012 and 2014, the number of newly trained consultant radiologists increased slightly, between 1% and 2%. However, during the same interval, "workload has increased substantially, as demonstrated by the continuing 10–12% yearly increases in numbers of imaging and radiodiagnostic…examinations" [1].

With 88% of departments unable to meet their reporting requirements during the census period, this represents a complex predicament. According to data from the National Health Service (NHS), between 2004 and 2014, "the overall number of tests has increased by 40 percent, representing an average growth of 3.4 percent per year." This significant rise in imaging utilization, coupled with the fact that, for instance, the volume of MRI scans increased by 220%, demonstrates why radiologists find themselves unable to keep up with a proliferating workload [2].

By comparison, studies suggest that imaging utilization in the United States is moving in the opposite direction. In a pair of studies published in 2013, the authors demonstrated either an outright decline in utilization rates or a slowing of the growth in utilization across a range of ages and modalities [3,4]. Although it has not been fully explored in the literature, these data suggest that locking into closer coordination with referring clinicians may not necessarily result in overwhelming backlogs for US diagnostic radiologists.

## COORDINATED CARE

As a result of the twin pressures of utilization and training in the United Kingdom, patient wait times between when a referring provider requests a test and when the radiologist performs it can vary considerably depending on the modality. According to the NHS, for the sample date range of March 1 to March 31 2016, "the median period…varied greatly for the different tests, from the same day for X-ray, Fluoroscopy and Medical Photography, to 22 days for MRI" [5].

Despite these obstacles, American diagnostic radiologists may still draw lessons from both the close level of coordination that exists between their English counterparts and hospital-based referring clinicians and from the fact that general practitioners (GPs), who serve the same function as family practitioners in the United States [6], value not just diagnostic radiologists' findings but also their recommendations on further patient treatment and nonradiologic investigation [7]. The end product of this relationship is the actionable report, which, in combination with the direct consultative process, helps guide the referring clinician on next steps in the care process.

If US radiologists could recast themselves into this same consultant role, which has already been helped by legislation requiring providers to consult appropriate use criteria through the use of a clinical decision support system, they might be able to avoid becoming commoditized [8]. A recent study by Dickerson et al [9] seems to support this notion of the radiologist as consultant. Researchers found that in-person collaboration between radiologists and acute care surgeons resulted in substantial changes in patient management.

## FINANCIAL PRESSURES

There are two plausible reasons why English referring clinicians value diagnostic radiologists' clinical opinions: the financial pressures inherent in the patient referral process and the traditional way in which diagnostic radiologists have been trained. The relationship between radiologist and referring provider has evolved since the founding of the NHS in 1948. One recent legislative decision influencing this symbiotic relationship was the establishment of clinical commissioning groups (CCGs) in 2012. CCGs are "clinically-led statutory NHS bodies responsible for the planning and commissioning of health care services for their local area" [10]. CCGs are made up of GP member practices. Each year, the NHS sets the prescribing budget for the CCGs [11].

The premise of CCGs is that GPs should have more control over spending decisions "as GPs see patients more regularly than other health care providers and so theoretically have a better understanding of their needs" [12]. Although more research needs to be conducted into the radiologist's relationship with the GP along financial lines, it is evident that because GPs have a great deal of responsibility for the care of their patients, including how much money is allocated by the CCGs to their GPs, it is in their interest to ensure that they are optimally making use of their finite resources.

One way of ensuring that resources are fairly apportioned is by finding a consensus among specialists as to the clinical indications.

Perhaps this is one reason why English referring clinicians, who can often times be GPs, place such importance on diagnostic radiologists' clinical opinions. Because GPs have far less direct interaction with radiologists than do hospital-based clinicians, including not being able to discuss cases at clinicoradiologic meetings, the report is most often the radiologist's only means of conveying important information to GPs [7].

## THE CLINICAL RADIOLOGIST

The financial repercussions of mismanaging patients and administering incorrect treatments are only one possible reason why referring clinicians rely on the clinical judgment of their radiologist colleagues. A second potential reason why English radiologists often enjoy consultant status among referring providers, although one that has not been explored in the literature, may be traced back to the level of clinical training British radiologists have traditionally received before becoming, as they call themselves, consultant clinical radiologists.

Until just a few years ago, radiology training in the United Kingdom was so competitive that candidates would often acquire several years of clinical experience and alternative postgraduate qualifications in other specialties before entering specialized radiology training [13]. One study suggests, however, that between 1974 and 2002, junior doctors choosing to enter radiology after only 1 year of medical training was on the rise, with a steady increase observed from 1993 onward [14]. Until 2005, however, it was still the case that a doctor's specialty training would usually begin a minimum of 3 years after graduation from medical school [13].

This translates into nearly two-thirds of radiologists still practicing as of 2012 having decided on a career in radiology 3 years after graduation from medical school; only 20% had decided in their first postgraduate year. Furthermore, as of 2002, 80% of those choosing a career in radiology in year 3 of their training were still working in the field 10 years after graduating [14].

Although more research needs to be conducted to establish a causal link, it is very possible that one reason referring clinicians in England have traditionally valued diagnostic radiologists' clinical opinions is due, at least in part, to the extra clinical training they received while deciding which field of specialization to enter. If this is indeed found to be the case, US radiology might consider advocating for adding more clinical training into radiology education.

We make this observation with the full knowledge that the trend toward junior doctors in the United Kingdom receiving robust clinical training, already on the decline for decades, seems to have taken a steep downturn in recent years. In addition, the lower level of clinical training traditionally received by US radiologists has not hurt their prospects for employment. The ACR's 2016 Commission on Human Resources Workforce Survey found that there is favorable parity between the number of available positions in radiology and the number of radiologists completing training each year [15]. The volume of tests performed and the number of radiologists available to interpret them seem to be coming into better equilibrium. However, these numbers say nothing about how often US radiologists' clinical opinion is followed, or even considered.

## PLANS TO MODERNIZE

To meet the increasing health demands of its population, the United Kingdom adopted a program called Modernising Medical Careers in 2005. This government-led action sought to overhaul postgraduate medical training in the United Kingdom, introducing the Foundation Training program as a 2-year, work-based enterprise that bridges the gap between medical school and specialty and GP training [16].

Modernising Medical Careers is just part of a larger effort in the United Kingdom to train more specialists, including radiologists, more quickly. In a vision statement released by the RCR in June 2016, the College recognized that in an era when there are just 4.8 trained radiologists per 100,000 people, current training levels are unsustainable [1]. Additionally, looking to external solutions such as outsourcing and recruiting radiologists from outside the European Union will not improve the situation because obtaining permission to work in the United Kingdom can be a slow, expensive process.

Teleradiology, particularly teleradiology confined to regional networks, has been pointed to by some experts in England as a partial solution to the backlog crisis [17]. Its proponents tout advantages such as quality assurance, the ability to perform peer review, and easy communication between teleradiologists within regional networks and referring providers. However, because this essentially freelance use of radiologists will abrogate the close

relationships built up over years and decades between hospital-based radiologists and their referring clinicians, UK radiology risks becoming commoditized if it invests too heavily in regional teleradiology.

Apart from relying on teleradiology, the RCR recommends training 60 additional radiologists per year for the next 5 years to reduce delays in the system [18]. Consequently, to attract the best medical minds into radiology, leaders are proposing to make the radiologist's work arrangement as flexible as possible. This includes a raft of proposals, from lobbying the government to increase investment in network solutions, to allowing radiologists the flexibility to work from home, to offering trainees innovative new e-learning initiatives [19]. Suffice it to say, both the discipline of radiology and radiology training in the United Kingdom may look different in the coming years.

And it is hard to deny that market forces threaten to distance English diagnostic radiologists from their traditional, face-to-face interactions with hospital-based referring providers and, thus, potentially commoditize them. At some point, if numbers are not met, one can envision these accommodations extending to training. Perhaps at some future date training programs will be forced to streamline their requirements even further to train more radiologists at a faster rate.

In contrast to the traditional British residency path, American radiology trainees experience clinical training only during their first year of residency. After that, they pursue a curriculum based on either diagnostic or interventional radiology and then, beyond that, 2 years of subspecialty training. However, this format offers only a limited opportunity for future diagnostic radiologists to gain clinical experience [20]. Granting that the British radiology training scheme has not kept pace with demand, it would likely go a long way toward recasting American diagnostic radiologists as consultants in referring clinicians' eyes if they received more clinical training.

In turn, a greater depth of clinical understanding could help radiologists produce more focused, actionable reports. During my trip, I spoke with several radiologists who cared directly for patients before entering their chosen field. One of these radiologists was Dominic Blunt, MB, BS, MRCP, FRCR, a consultant radiologist at Charing Cross Hospital in London. "Historically, the place from which UK radiologists come to radiology has been somewhat different from US radiologists," explained Blunt. "In my era, most of us did our board examinations in general medicine or general surgery before we started radiology training."

Blunt went on to say, "In my case I've done maybe 4 years of internal medicine, completed my member in the Royal College of Physicians examination, and therefore had quite a lot of clinical experience dealing with acutely sick patients in a hospital setting and requesting imaging investigations" before becoming a radiologist. Blunt noted that this type of training helps him see things from the referring clinician's point of view, which is helpful when coordinating patient care.

## VALUE-BASED CARE

Here in the United States, CMS has laid the groundwork for heightened consultation between radiologists and referring clinicians by setting a deadline of 2018 for referring providers to start ordering advanced imaging studies with clinical decision support software that is based on appropriate use criteria [21,22]. Because of the inevitability of this more tightly coordinated care, US radiologists could benefit from understanding how these interactions work for British radiologists.

The Medicare Access and CHIP Reauthorization Act of 2015, also known as MACRA, paves the way for US radiologists to demonstrate the value they bring to patient care. Because of this, radiologists on this side of the Atlantic should pay attention to ways, albeit on the decline, that British radiologists have traditionally demonstrated value to patient care. Examples of this include not just providing their clinical opinions but also attending and often leading interdepartmental meetings, sitting on hospital committees, and making themselves available to hospital-based referring providers for discussions about complicated scans. As US health care transitions to a value-based rubric, American radiologists should do their best to avoid becoming a commodity.

## ADDITIONAL RESOURCES

Video available at: http://dx.doi.org/10.1016/j.jacr.2016.11.001.

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