



We have experienced a great deal of change in recent years, and there is little reason to believe that these alterations are by any means over.

Future shock: Challenges facing U.S. radiology

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“Future shock” is a phrase derived from the title of a book published in 1970 by Alvin Toffler.¹ In its most succinct form, it refers to a mental state in which individuals, groups or even whole societies experience “too much change in too short a period of time.”² This term often resonates with me as I have spoken this year with radiologists around the USA and others countries. For us in diagnostic imaging there has been a lot of change in a very short time and not all of it has been good.

We are in a relative interregnum in the US health care reform process. To paraphrase a quote from Winston Churchill, we are not at the beginning of the end but we might be at the end of the beginning. This is a good time for us to do a strategic assessment of the opportunities and threats to the current practice of radiology — not just federal health care reform, but the many other factors that are at work. Several key strategic challenges are combining to create a chronic form of future shock in those of us that are experiencing these rapid and at times chaotic changes in United States radiology. Let’s review the individual shocks or challenges individually to better understand how these breaking trends impact our specialty.

Declining reimbursement

Perhaps no other topic in radiology is as capable of generating more anger and virulent debate than the decline in per unit reimbursement for work radiologists do. While most of us see this as a destructive and fearsome trend, some radiologists see it as a deserved correction or punishment for a specialty that has been historically overpaid. That’s certainly a point of debate, but the facts are that there have been multiple serious reductions in reimbursement beginning during the George W. Bush presidential administration with the Multiple Procedure Payment Reduction and Deficit Reduction Acts and then accelerating through the Obama administration. This has occurred not only to the professional component of what our service, but to the technical component as well. The latter has occurred over ten times in recent years.³

According to a good friend who is in a prominent practice in a major western city these effects have reduced the practice’s reimbursement on a per case basis by almost 50% over the past decade. This development has driven far-reaching changes, not just in how much disposable income the group’s radiologists have, but it has also changed

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the number of radiologists that can be hired, how much equipment can be purchased, how many people want to train to become radiologists as well as how many research and development dollars the imaging industry will be investing in improving existing technologies and creating novel imaging platforms.

Volume to value

A related shock to declining payment is a fundamental change in how we are paid. For years both government officials⁴ and academics⁵ have blamed fee for service for many of the ills that are said to afflict the US health care system and have called for alternative payment systems. Some of those proposed have included value components to replace volume based payments that include carrots (Accountable care organizations (ACO), quality bonuses) and/or sticks (bundled payments, quality penalties). Recently, the Centers for Medicare and Medicaid Services (CMS), declared that it wanted to transition 90% of traditional Medicare payments to value based metrics by 2018.⁶

While fee for service is relatively clear, the role of radiologists in value based systems remains ambiguous. The ACR has developed Imaging 3.0 to provide suggestions, guidelines and examples for radiologists who are facing this challenge. In my consulting practice, this issue has become the number one topic in 2015. Much of the difficulty revolves around matters such as what percentage of shared savings in an ACO should go to the radiologists, how can radiologists control costs when they can't control the ordering habits of referring physicians and how much of an "outcome" is attributable to diagnostic radiology?

Measuring Value

Traditionally, health outcomes have been measured with statistics such as life expectancy or infant mortality. Classically, this has been the basis of comparing nations (and often dis-

paraging the US with its high costs). Using outcomes to do this only meets this standard if there are no significant differences in *inputs* to the health care system. For a more detailed analysis of the actual performance of a health care system, you need to be able to account for variation in the inputs that weigh on outcomes. At a minimum, the analysis should address the most critical pre-existing inputs such as obesity, smoking history, illicit drug use, and unsafe personal habits.

For many of us in radiology, even a reasonable analysis might be a dismal failure since many metrics are not "smart enough" to measure the quality of the health care system. Such analyses are strongly influenced by many other factors including patient behavior and lifestyles, as well as genetics, levels of violence, social structures, local pollution, etc. If you are going to switch radiology to a value-based purchasing scheme or tie payments to outcomes then you will not only need to address the preexisting external factors, you will also need more intelligent measures of radiology's contribution within the whole of the health care institution. These will need to be tied to actionable elements of the imaging process, otherwise you are moving away from volume based payment, but instead of going towards a true value measure you are ending up with a clumsy or near imaginary measure of radiology's contribution to health care.

Decline in the independent practice of radiology

Outside of academic practice and employment with the government, the traditional private practice of radiology in the US has been based upon independent groups of radiologists working under contract in a hospital setting and often concurrently for themselves in their group's outpatient facilities. This model has been eroded by several synchronous waves of change including the development

of national radiology companies that provide comprehensive radiology services including daytime coverage, the shift in many localities from groups in independent practice to accepting hospital employment, as well as many younger radiologists going directly into employed positions. It would be smarter to be concerned about the decline in the influence of radiologists and the loss of choices in the variety of models of working as a radiologist. This latter factor has impact upon the ability to contract, to capture value, on service and quality as well as on professionalism. Moreover, the story of corporate dominance of radiology in comparable nations such as Australia more than suggests that there will be serious downsides to this trend.⁷ As we say in many settings, diversity is good. Weakening or loss of the private sector with a reduction in the types of radiology practice available should concern all radiologists, not just those who are currently working in the private practice model.

Fragmentation in the house of radiology

One of the peculiar characteristics of US radiology is the number of organizations that claim to represent its interests. While exact data is difficult to obtain, a ballpark number is that there are about 30,000 US radiologist FTEs engaged in the practice of the specialty in the US, not including retirees or those in training. The report of the most recent Intersociety Committee, an invitation only meeting that brings radiology organizations together, stated that there are "50 plus" radiology societies in the US.⁸ Even in "robust" periods for the specialty it meant that radiology's voice and influence were fragmented. During difficult periods, such as the one that we are living through now, there are and likely to be more ongoing challenges facing US radiology. Fragmented leadership does not bode well for our ability to cope effectively with these issues.

Funds available to support radiology conferences and organizations as well as financial support and time to attend meetings are currently declining. Given such limited backing the current number of distinct radiology-focused organizations may not be sustainable. Now more than ever we need effective, well-funded organizations that can advocate for our views with powerful interests such as the government, major payers, hospital chains, corporate entities and patient advocacy groups.

Declining interest in US radiology by US medical school graduates

An impending shock that directly impacts the future of radiology is the decline in interest in radiology among US medical school graduates. While the level of interest has oscillated more than once over the past decades, it is currently in decline. The data from the 2013 match showed that there were only 845 applicants for 1,143 slots. That was the worst year since 1998.⁹ The current year also saw a substantial shortfall in the number of applicants. Without enough highly motivated and capable applicants, training programs will suffer initially and ultimately the specialty itself will start to decline. The future of radiology is our young radiologists and it will be shocking to be in a specialty in decline.

Declining perceived value of specialists relative to primary care physicians and other non MD providers

One of the core tenets of many health care reformers in recent years has been that the U.S. has too many specialists and that the imbalance has been at the

expense of primary case medicine and, furthermore, that it contributes to the low perceived performance of the U.S. on value-based metrics. As an incumbent specialty with many sub-specialty disciplines requiring a high degree of cognitive training we are particularly vulnerable to efforts directly aimed at the devaluation of specialty care. The Affordable Care Act (a.k.a. Obamacare) included some direct reductions in specialty reimbursement to pay for modest increases in primary care that were instituted early on.

In addition, there has been some very prominent negative press as well as focused public relations campaigns against physician specialists and how they get paid through government sanctioned mechanisms such as the Relative Value Scale Update Committee.^{10,11} The trend towards diminishing the value of physicians is also occurring on the other side of the spectrum with debates about reducing the length of medical school,^{12,13} reducing medical training or even, in some cases, eliminating the need for medical training before going into practice!¹⁴

Conclusions

Certainly for most practicing US radiologists in 2015 there is a significantly increased level of “future shock.” We have experienced a great deal of change in recent years and there is little reason to believe that these alterations are by any means over. By recognizing the individual components of this “shock” we can perhaps take a more focused approach to coping with the contributing elements, mitigating them, or actually reversing them. The better we understand the root causes of these

current and pending changes,¹⁵ the more we can do to control our professional destiny.

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