

Factors That Will Determine Future Utilization Trends in Diagnostic Imaging

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Abstract

Radiologists are facing uncertain times, and in this kind of environment, strategic planning is important but difficult. In particular, it is hard to know whether future imaging volume will increase, decrease, or stay approximately the same. In this article, the authors discuss a variety of factors that will influence imaging use in the coming years. Some factors will tend to increase imaging use, whereas others will tend to curtail it. Some of these factors will affect individual groups differently, depending on their locations and the circumstances of their practices. Radiologists would be well advised to become aware of and consider these factors as they go about their planning processes.

Key Words: Medical economics, noninvasive diagnostic imaging, imaging utilization trends, radiology and radiologists, socioeconomic issues

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Planning for the future is a vital aspect of managing a radiology practice, whether it be a private office, a community hospital group, or an academic radiology department. In doing such planning, one of the most important projections that must be made is whether one aspect of the group's core business - imaging volume - will increase, decrease, or remain the same. In the early years of the past decade, imaging was the most rapidly growing of all physician services [1]. Those seemed to be the golden years for radiologists, with ever increasing demand for their services. However, in more recent years, trends in utilization rates of imaging have flattened and in some instances even begun to decline [2,3]. The picture is no longer so rosy, and many in the field are wondering where imaging use is headed in the future.

In this article, we discuss what we believe will be the principal factors affecting the use of imaging in upcoming years. Some of them will lead to increased use of imaging,

and some will reduce its use. Readers can then take the two types of factors into account as they pertain to their own practice circumstances and do their planning accordingly.

FACTORS PROMOTING INCREASED USE OF IMAGING

Growth and Aging of the Population

The population of the United States is currently 323 million. In the past year, it grew by approximately 2.4 million [4]. The US Census Bureau projects that the entire population will grow to 400 million by 2051 and that the population of individuals over age 65 will increase from 46 million in 2014 to 88 million in 2050 [5]. These population trends will be key stimuli to imaging growth and can be counted upon, barring unforeseen circumstances.

The Patient Protection and Affordable Care Act

Although this legislation is politically controversial, one thing it clearly has accomplished is bringing health care insurance to millions of Americans who were formerly without it. This will very likely increase the demand for imaging, although it is not yet clear how great the increase will be. At least some of the formerly uninsured may have gotten much or all necessary imaging in the past through emergency department visits.

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Defensive Medicine

Virtually every day, radiologists are called upon to read imaging studies they feel are unnecessary or not indicated. Often these studies are ordered purely for defensive reasons because of fears of malpractice liability. For example, in a recent survey of 435 emergency medicine physicians, 97% acknowledged personally ordering at least some medically unnecessary CT or MRI scans [6]. Nearly two-thirds of them indicated that avoidance of potential malpractice issues was often or almost always a reason for this. Although meaningful tort reform at the national level would probably allay some of these concerns, it does not seem that Congress is willing to tackle this controversial issue at present. As long as the current situation is allowed to continue, it will spur greater use of imaging.

New Technology and New Applications of Older Technology

History has shown that new imaging technologies are frequently developed by the many manufacturers in the field. Likewise, there are often new applications of existing technologies that come into use as their efficacy is demonstrated. Although Medicare and the commercial payers are often reluctant to pay for these technologies initially, they generally become sources of expansion of imaging.

Consumerism (Patient Demand)

With the availability of the web and search engines, patients and families are becoming increasingly sophisticated about medicine and the use of high-tech imaging machines to make diagnoses. When patients insist on undergoing MRI studies for their knee discomfort or persistent low back pain or headache, physicians often find that the path of least resistance is to simply order the test.

Self-Referral

Self-referral in imaging has been around for decades. Its pernicious effect on overutilization has been documented by many authors [7-10]. In recent years, it seems to have been somewhat eclipsed as a concern for radiologists by many other issues that have arisen. However, it still exists and is even being encouraged to some extent; witness the recent recommendations to physicians to acquire and use handheld ultrasound machines in their daily practice [11]. This problem will persist until Congress modifies or repeals the in-office ancillary

services exception to the Stark self-referral laws, something that seems unlikely to happen any time soon.

Increased Interest in Screening

The most recent example of this is CT screening for lung cancer in individuals who have smoking histories, which has now been approved for reimbursement by CMS. It remains to be seen whether the success with lung cancer screening will be followed by the institution of similar programs in other diseases.

FACTORS THAT CAN REDUCE THE USE OF IMAGING

Utilization Management

The two principal mechanisms of utilization management at the present time are radiology benefits management companies (RBMs) and computerized clinical decision support (CDS). The former have been in existence for almost two decades and are widely used by the commercial health plans. The latter shows great promise but has not yet been widely used. Both are controversial. RBMs are not popular with either ordering physicians or radiologists. However, we believe RBMs have changed the way physicians think about ordering advanced imaging and that they are the primary reason for the leveling off of the growth that had been seen in previous years. They are well entrenched in the commercial health plan industry, and it does not seem likely that they will disappear any time soon.

CDS is strongly supported by the ACR [12]. Among the early adopters who were involved in developing the technology, it has achieved some success in limiting the use of imaging studies that are not considered appropriate [13-15]. However, there have also been some results that are problematic [16-18]. The main problems have been a high rate of failure of requests to match the appropriateness criteria built into the system, a tendency to “game” the system by ordering physicians, and lack of acceptance by users. A recent meta-analysis of the literature on the results of using CDS in imaging concluded that it can improve appropriate use of diagnostic radiology by a moderate amount and decrease use by a small amount [19]. The authors also called for more data on potential harms.

It is likely that with the passage of time, CDS will be modified and improved. The Protecting Access to Medicare Act of 2014 mandated that physicians ordering advanced imaging on Medicare outpatients in the future utilize appropriate use criteria via CDS [20]. This

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