Addressing Over-Utilization in Medical Imaging: Ideas from the 2009 ABRF/ABR/NIBIB Workshop

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Overutilization of Imaging

Application of an imaging procedure under circumstances where it is unlikely to improve patient outcome

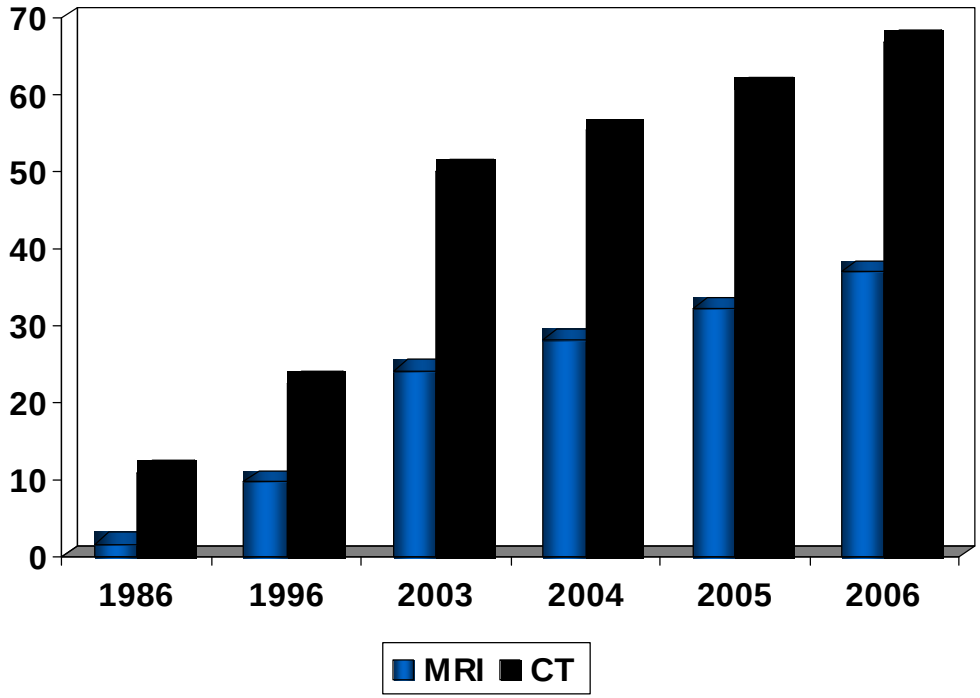
James Thrall, MD

Is Imaging Being Over Utilized?

- Imaging services and costs have clearly grown disproportionately to overall health care costs this decade
- Growth per se has been taken as evidence of “overutilization”
- Clearly growth is not the same as overutilization
- However, detail level considerations support the conclusion that overutilization exists and that numerous factors are driving it

Advanced Medical Imaging in 2006: The Perfect Storm

High-Tech Imaging Utilization in the U.S. (millions of exams)

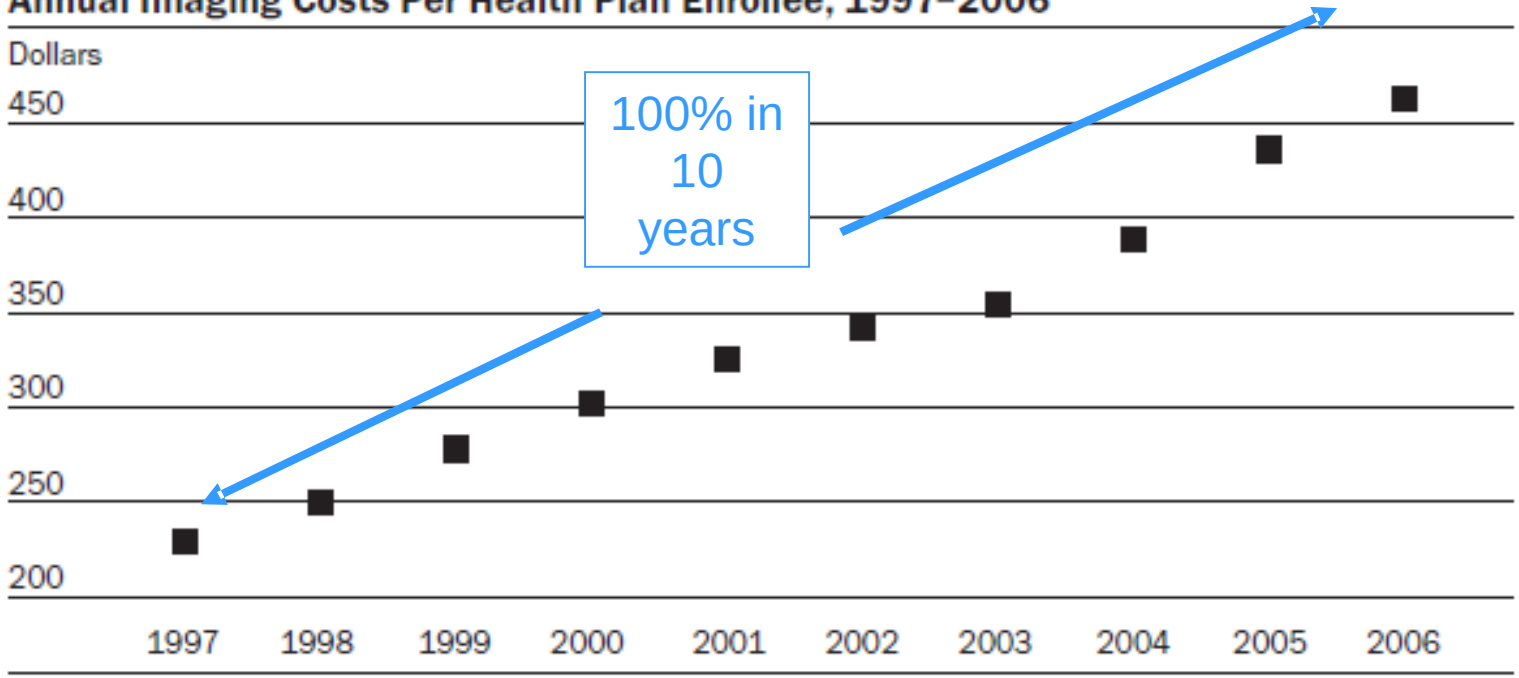


Prevailing environment has been likened to a "***Perfect Storm***", due to the simultaneous occurrence of the following events:

- Technological innovations/updates are creating significant capital expense
- Product life cycles for new technology releases are shortening (only 12-18 months)
- Relatively high valuation for imaging procedures
- Imaging utilization rates outpacing other service growth and are steadily increasing

Integrated Health System Imaging Cost Trends

EXHIBIT 4
Annual Imaging Costs Per Health Plan Enrollee, 1997–2006



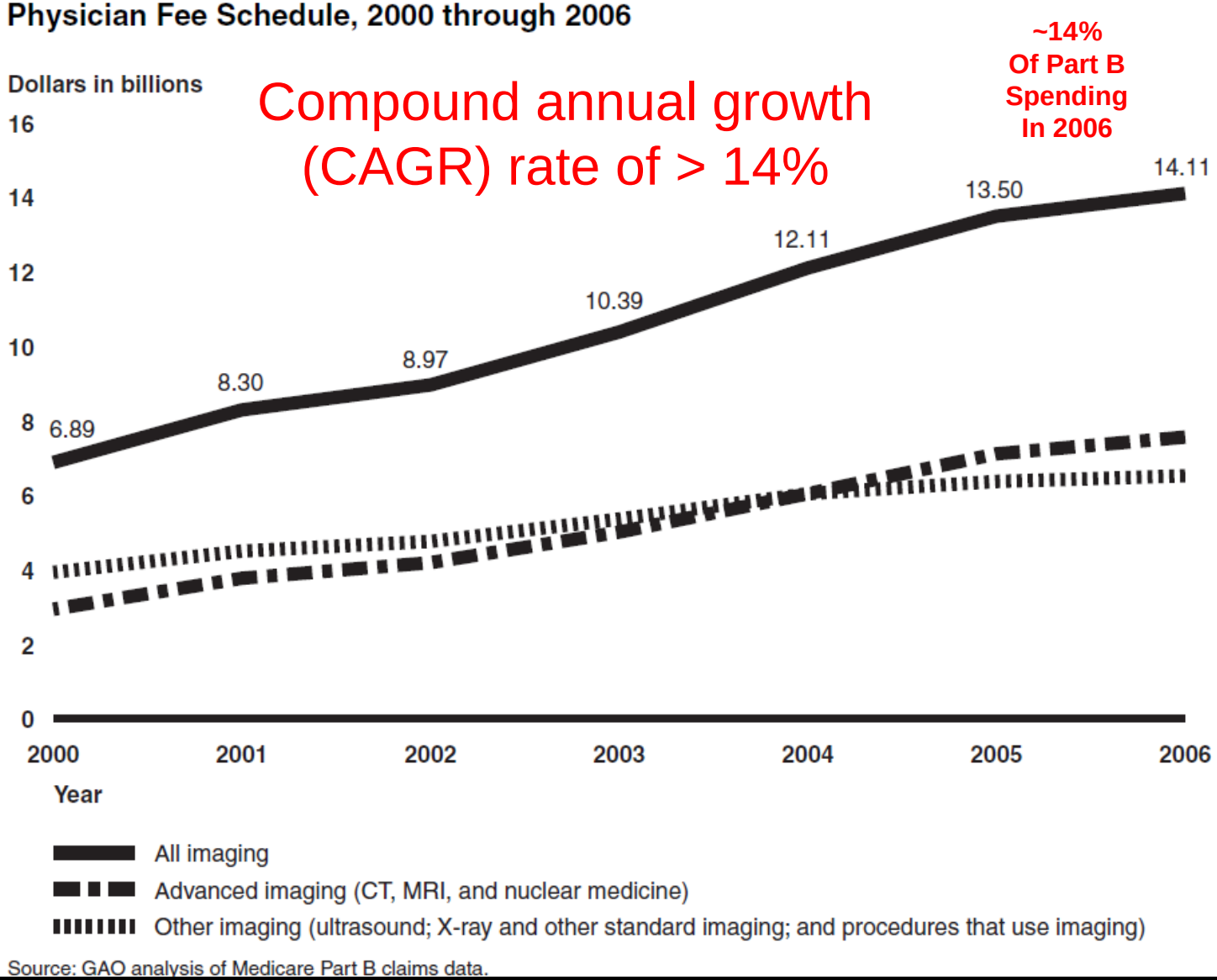
SOURCE: Group Health Cooperative data.
NOTE: Data are adjusted to a standard age distribution across all years of study.

Group Health Cooperative, Seattle, WA

Rising Use Of Diagnostic Medical Imaging In A Large Integrated Health System
The use of imaging has skyrocketed in the past decade, but no one patient population or medical condition is responsible.
by Rebecca Smith-Bindman, Diana L. Miglioretti, and Eric B. Larson
[*Health Affairs* 27, no. 6 (2008): 1491–1502; 10.1377/hlthaff.27.6.1491]

Total Medicare Imaging Costs are Rising
GAO Report 2008

Figure 1: Total Medicare Expenditures for Imaging Services Paid under the Physician Fee Schedule, 2000 through 2006

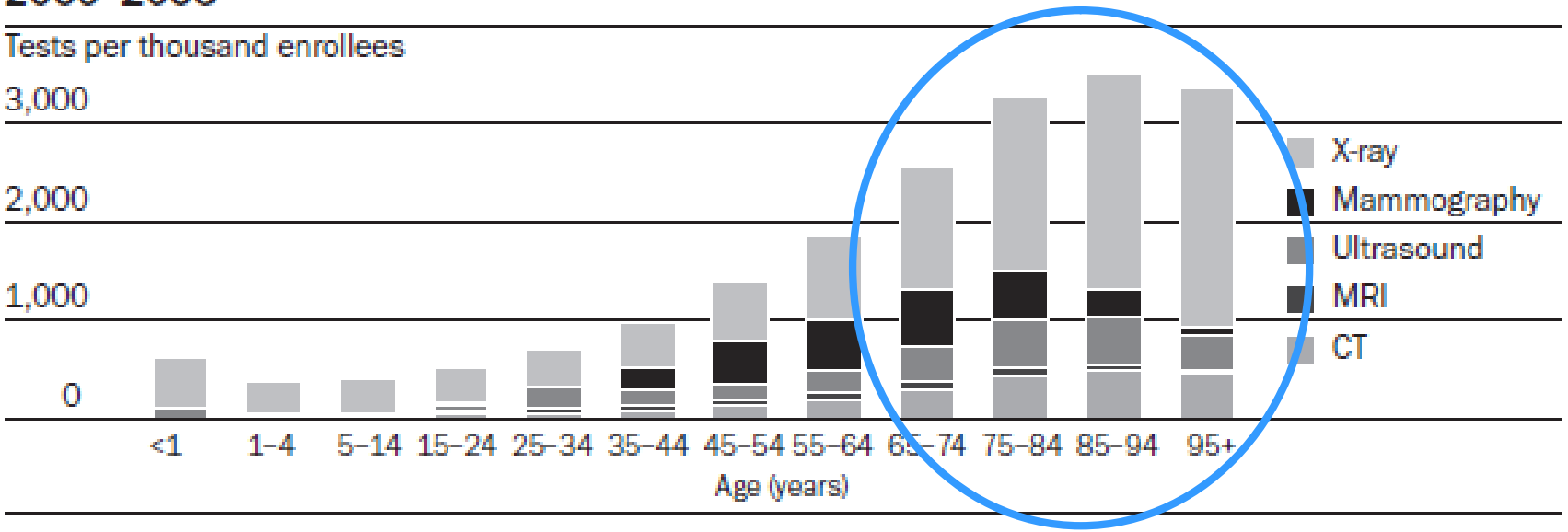


Source: GAO analysis of Medicare Part B claims data.

The Boomer “Effect” Is Just Beginning

EXHIBIT 2

Number Of Imaging Tests Per Thousand Enrollees Per Year, By Modality And Age, 2000–2006



SOURCE: Group Health Cooperative data.
NOTES: Results are stratified by patient age, averaged across 2000–2006. MRI is magnetic resonance imaging. CT is computed tomography.

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MedPAC on Utilization

"Perhaps the most significant reason to be concerned about the potential overuse of imaging is the threefold variation in the number of (Medicare-covered) imaging services provided across the country. This difference is twice that seen in the use of major procedures"

- Report to the Congress: Medicare payment policy. Washington, D.C.: Medicare Payment Advisory Commission, 2005
- Report to the Congress: Variation and innovation in Medicare. Washington, D.C.: Medicare Payment Advisory Commission, 2003

Factors Influencing Over-Utilization

Referring Physician Factors

Lack of knowledge about the procedure

Lack of knowledge about the patient

Duplicate exams/orders

Failure to adequately examine

Self-Referral

Referral for a test or procedure where the ordering or referring physician is also the provider of the service or has an ownership interest in providing the service

Inappropriate Financially Motivated Self-referral

Financial motivation versus medical necessity

Appropriateness criteria not used/ignored

Turf Wars in Radiology: The Overutilization of Imaging Resulting from Self-Referral

David C. Levin, MD[a,b], Vijay M. Rao, MD[a]

A recent report by the Medicare Payment Advisory Commission to Congress indicated that the utilization of diagnostic imaging is growing more rapidly than that of any other type of physician service. This has engendered concern among those who pay for health care. In this article, the authors review the role of self-referral in driving up imaging utilization.

A number of studies of the self-referral factor in imaging have been conducted over the past three decades. These have consistently shown that when nonradiologist physicians operate their own imaging equipment and have the opportunity to self-refer, their utilization is substantially higher than among other physicians who refer their patients to radiologists. It has also been shown that the vast bulk of the recent increases in imaging utilization are attributable to nonradiologists who self-refer. The authors estimate that the cost to the American health care system of unnecessary imaging resulting from self-referral by nonradiologists is $16 billion per year.

Key Words: Medical economics, diagnostic radiology, radiology, radiologists, departmental management, socioeconomic issues

J Am Coll Radiol 2004;1:169-172.

Soaring CT-based radiation exposure points at self-referral

By H.A. Abella

The U.S. population underwent seven times as much ionizing radiation exposure from medical imaging in 2006 as it did in 1987, mainly from CT, according to a study released at the 2009 National Council on Radiation Protection and Measurements in Bethesda, MD. Overutilization due to self-referral appears to bear some blame.

Findings of the NCRP report No. 160, released March 3, serve as follow-up to a preliminary report released in April 2007 that suggested the amount of radiation dose experienced by the U.S. public from such exams could have increased more than 600% in the last two decades.

National Council on Radiation Protection NCRP

Self-referral was a primary driver of the radiation exposure increase, Schauer said in June 2008

NCRP executive director David A. Schauer

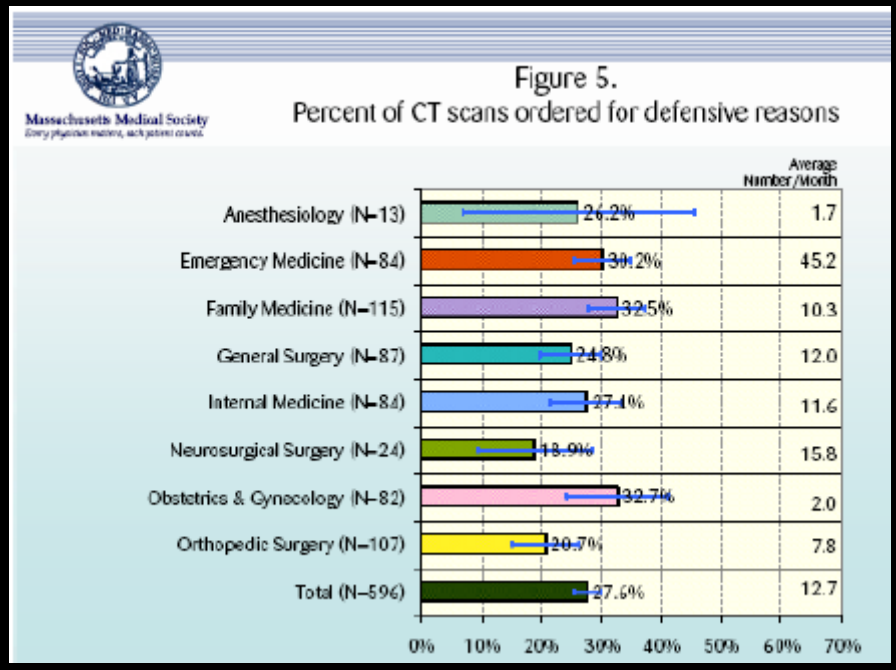
March 2, 2009

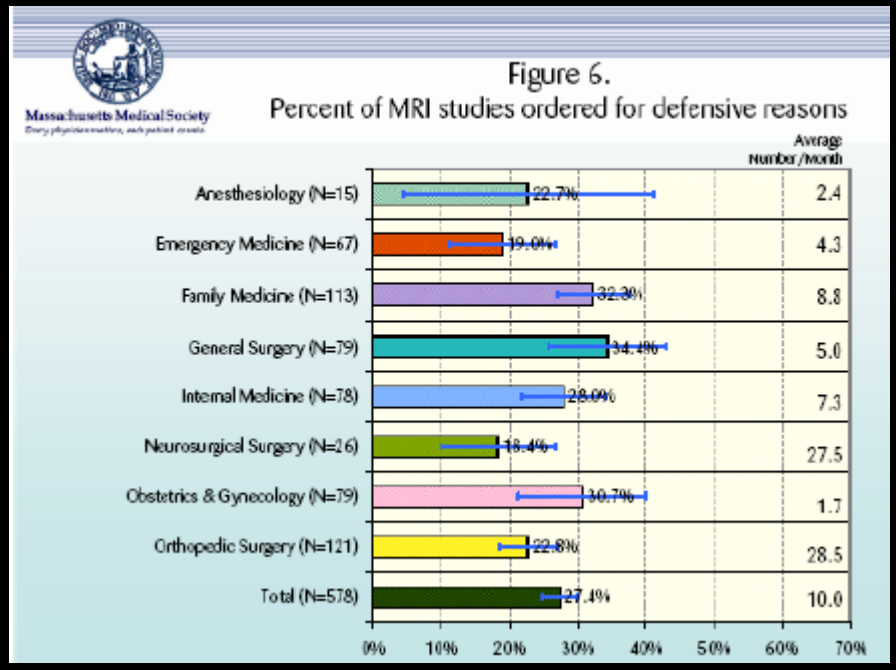
Diagnostic Imaging.

Defensive Medicine

The application of diagnostic or therapeutic measures primarily as a safeguard against possible malpractice liability and not to ensure the health of the patient

Prevalence and Cost of Defensive Medicine





- Imaging 25% (~average)
- Lab 18%
- Admissions 13%
- Cost projected for state of Massachusetts $1.4B

Available at www.massmed.org

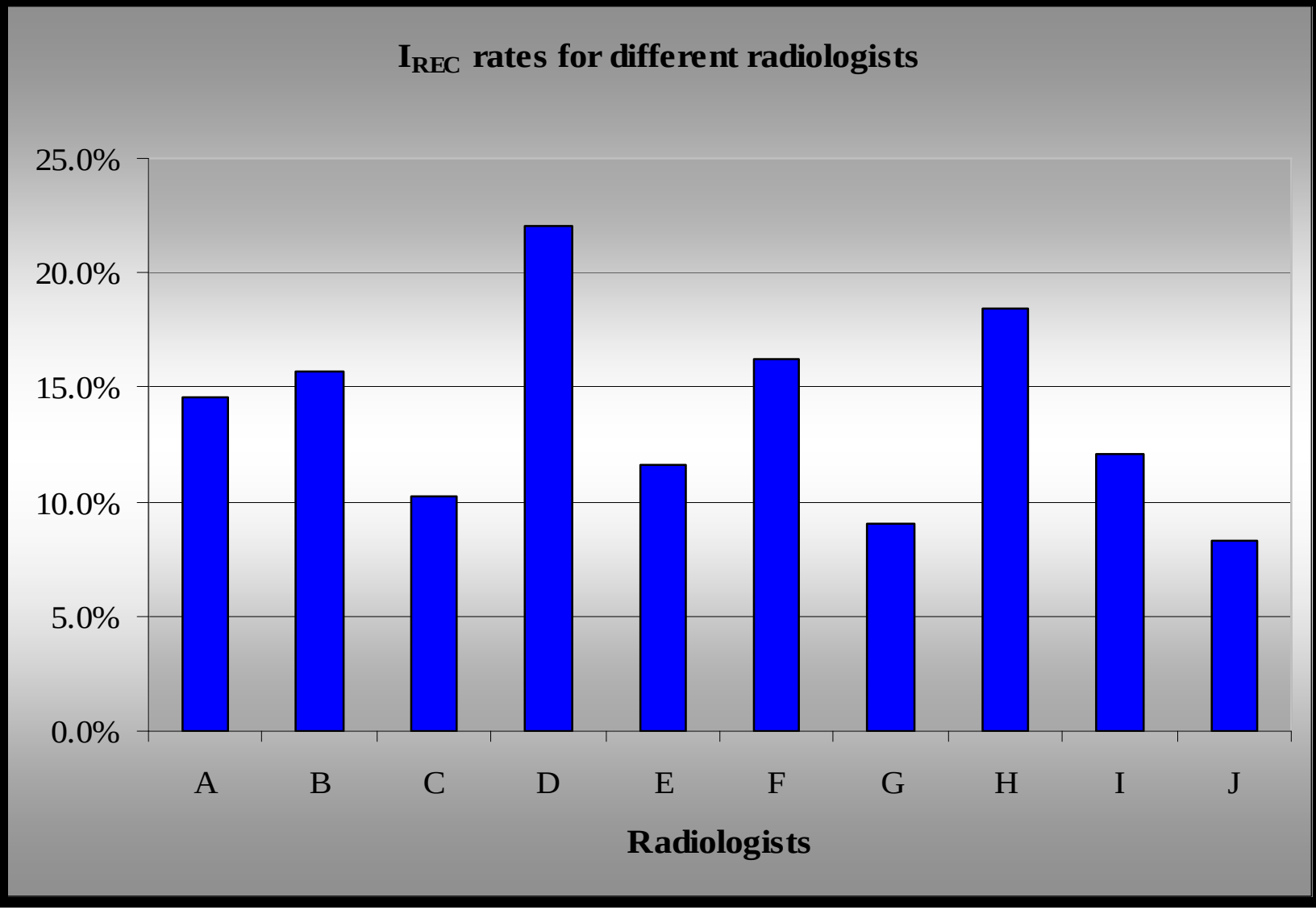
Radiologist Factors

- Failure/inability to review appropriateness of ordered exams
- “Over marketing” for marginal indications

Radiologist Factors

- Recommendations for additional exams
  - As an adjunct to an interventional procedure
  - As part of a clinical protocol or practice standard/policy
    - Fleischner Society guidelines for follow up imaging of pulmonary nodules
    - Breast Imaging-- BI-RADS
  - Lack of certainty, confidence or experience
  - Practice culture/self referral

Recommendation rates for exams performed for identical clinical indications read by different radiologists



Patient Factors/Patient Request

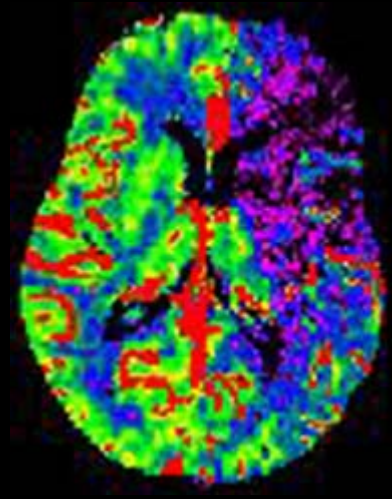
- Lack of knowledge of what imaging can and cannot do
- Expectation that imaging will be performed from prior health care encounters
- Preference to understand source of symptoms– especially MSK
  - Demands/expects imaging procedure
  - Weekend warrior syndrome
- Too little financial responsibility– no deductable or co-pay
- Difficult to quantify
- Probably overlaps with defensive medicine considerations

Health System Factors

- Failure to enact policies controlling inappropriate, financially motivated self referral
- Failure to support research to establish the evidence necessary to develop appropriateness criteria
  - being addressed in ARRA and health reform to some degree
  - Comparative effectiveness research
- Limited use of appropriateness criteria or other utilization management methods such as RBM programs
- High reimbursement inducing too many providers to offer imaging services

Health System Factors

- Failure to control the number of imaging devices or match device numbers to population needs
- Baker et al. *Expanded use of imaging technology and the challenge of measuring value. Health Affairs, 2008, 27, 1467-1478*
  - 733 additional MRI scans and
  - 2,224 additional CT scans per additional device in a metropolitan area



Methods For Dealing With Overutilization

- Development of evidence based appropriateness criteria
- Practice guidelines
- Education of providers
- Feedback to providers
- Utilization targets– tests/1000 patients
- Decision support– point-of-care
- Prior approval systems– Radiology Benefits Management companies

Observations

- Growth in imaging services has been stimulated by disparate factors
  - Good growth-- Transformational increases in clinical utility
  - Bad growth-- Desire for profit opportunity by many players apart from providing medical benefits
- Growth is slowing

Observations

- Overutilization is unquestionably present
- Largest factors appear to be
  - Self-referral– 8%-12%
  - Defensive medicine (pt preferences)– 5-25%
  - Lack of knowledge on part of referring physicians– 10-15%
  - Practice variation
  - Lack of systems for decision support/utilization management

Observations

- Growth more than overutilization has made imaging a target for fee reductions
- Nonetheless, imaging is under the gun and further cuts are likely