

(\* del Radiology)

Yoav Morag, MD, Jon A. Jacobson, MD, Gregory Shields, MD, Rajiv Rajani, BS, David A. Jamadar, MB, BS, Bruce Miller, MD and Curtis W. Hayes, MD

© RSNA, 2004. <sup>1</sup> From the Department of Diagnostic Imaging, Yale University School of Medicine, and Radiology Consultants, 40 Temple St, Suite 2B, New Haven, CT 06510. Received August 15, 2003; revision requested November 6; revision received December 22; accepted February 9, 2004. Address correspondence to the author (e-mail: toycemccauley@comcast.net).

## April Review

### MR Arthrography of Rotator Interval, Long Head of the Biceps Brachii, and Biceps Pulley of the Shoulder<sup>1</sup>

The rotator interval and the long head of the biceps brachii tendon are anatomically closely associated structures believed to confer stability to the shoulder joint. Abnormalities of the rotator interval may be acquired or congenital and are associated with instability of the long head of the biceps brachii tendon. Clinical and arthroscopic diag-

noses of rotator interval abnormalities and subtle instability patterns of the long head of the biceps brachii tendon are difficult. Magnetic resonance arthrography, owing to its superior depiction of ligaments with distention of the joint capsule, may be the procedure of choice, barring open surgery, for help in diagnosis of these conditions.

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G. Scott Gazelle, MD, MPH, PhD, Pamela M. McMahon, BS, Uwe Siebert, MD, MPH, MSc and Molly T. Beinfeld, MPH

© RSNA, 2005. <sup>1</sup> From the Institute for Technology Assessment and Department of Radiology, Massachusetts General Hospital, Harvard Medical School, 101 Merrimac St, 10th Floor, Boston, MA 02114-4724 (G.S.G., P.M.M., U.S., M.T.B.); Department of Health Policy and Management, Harvard School of Public Health, Boston, Mass (G.S.G., U.S.); and PhD Program in Health Policy, Harvard University, Boston, Mass (P.M.M.). Received February 19, 2004; revision requested April 27; revision received May 4; accepted May 24. Address correspondence to G.S.G. (e-mail: scott@mgh-ita.org).

## May Review

### Cost-effectiveness Analysis in the Assessment of Diagnostic Imaging Technologies<sup>1</sup>

In many ways, diagnostic technologies differ from therapeutic medical technologies. Perhaps most important, diagnostic technologies do not generally directly affect long-term patient outcomes. Instead, the results of diagnostic tests can influence the care of patients; in that way, diagnostic tests may affect long-term outcomes. Because of this, the benefits associated with the use of a specific diagnostic technology will depend on the performance characteristics (eg, sensitivity and specificity) of the test, as well as other factors, such as prevalence of disease and effectiveness of available treatments for the disease

in question. The fact that diagnostic tests affect short-term, or "surrogate," outcomes, rather than long-term patient outcomes makes evaluation of these tests more complicated than the evaluation of therapeutic technologies. This article will trace the history of technology assessment in medicine, address the role of cost-effectiveness and decision analysis in health technology assessment, and describe unique features and approaches to assessing diagnostic technologies. The article will then conclude with a consideration of the limits of medical technology assessment.

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Thomas G. Flohr, PhD, Stefan Schaller, PhD,  
Karl Stierstorfer, PhD, Herbert Bruder, PhD,  
Bernd M. Ohnesorge, PhD and U. Joseph  
Schoepf, MD

## June Special Review

# Multi-Detector Row CT Systems and Image-Reconstruction Techniques<sup>1</sup>

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© RSNA, 2005. <sup>1</sup> From Siemens Medical Solutions, CT Division, Forchheim, Germany (T.G.F., S.S., K.S., H.B., B.M.O.); Department of Diagnostic Radiology, Tübingen University, Germany (T.G.F.); and Department of Radiology, Medical University of South Carolina, 169 Ashley Ave, Charleston, SC 29425 (U.J.S.). Received January 7, 2004; revision requested March 9; revision received April 26; accepted May 24. Address correspondence to U.J.S. (e-mail: schoepf@musc.edu).

The introduction in 1998 of multi-detector row computed tomography (CT) by the major CT vendors was a milestone with regard to increased scan speed, improved z-axis spatial resolution, and better utilization of the available x-ray power. In this review, the general technical principles of multi-detector row CT are reviewed as they apply to the established four- and eight-section systems, the most recent 16-section scanners, and future generations of multi-detector row CT systems. Clinical examples are used to demonstrate both the potential and the limitations of the different scanner types. When necessary, standard

single-section CT is referred to as a common basis and starting point for further developments. Another focus is the increasingly important topic of patient radiation exposure, successful dose management, and strategies for dose reduction. Finally, the evolutionary steps from traditional single-section spiral image-reconstruction algorithms to the most recent approaches toward multisection spiral reconstruction are traced.

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