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### True Value

by **David B. Case, MD, and John E. Postley, MD**

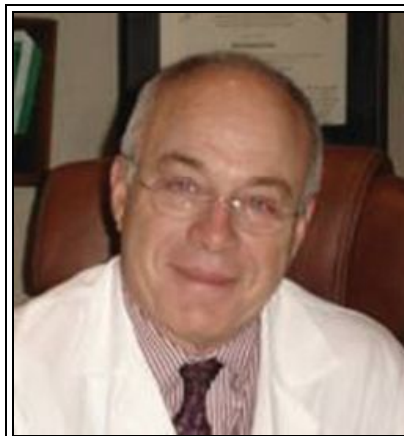
#### Let's protect access to safe, cost-effective ultrasound at the point of care.

The turf wars of a few years ago between radiologists and nonradiologists are now giving way to a discussion regarding the appropriate use of ultrasound at the point of care. In February, a *New England Journal of Medicine* review article described the proven utility of this technology across medical specialties, from obstetrics to cardiology, emergency medicine, anesthesiology, musculoskeletal specialties, and other fields. Sonography is also widely employed for procedural guidance. The Agency for Healthcare Research and Quality lists ultrasound needle guidance during central line insertions as one of the 12 most important safety practices to prevent serious complications or patient injuries.

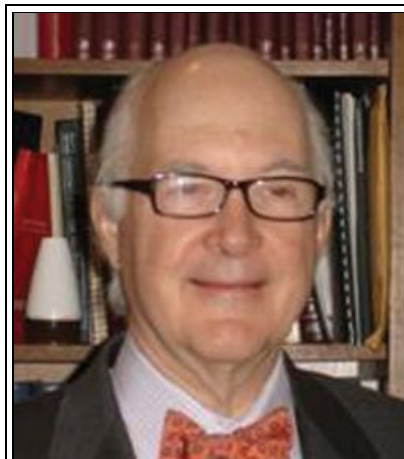
The *NEJM* review also examines policy considerations and the pros and cons of ultrasound used at the point of care, focusing on the expanded use of imaging, in general, by nonradiologists between 2000 and 2006. Most of this increase was for advanced imaging, such as CT, MRI, and nuclear medicine, but certain ultrasound applications have increased as well, specifically cardiac applications. As physicians who perform ultrasound in our office practice to diagnose patients with cardiovascular disease (CVD) and other serious conditions, we are concerned that any move to reduce access to this potentially life-saving technology, either by regulation or by reducing reimbursements could jeopardize patient safety and care, while increasing health care costs, given ultrasound's benefits and cost-effectiveness.

Appropriate use of ultrasound at the point of care, the *NEJM* review reports, can "decrease medical errors, provide more efficient real-time diagnosis, and supplement or replace more advanced imaging in appropriate situations." In the past, one misconception about this technology in office practice is that it would diminish the role of radiologists. It turns out that the opposite is true: Our experience is that ultrasound when used at the point of care actually facilitates collaboration and efficient care by yielding immediate findings that can lead to high value referrals in cases when advanced diagnostic imaging is medically warranted, allowing radiologists to better target the patient's tests. In many other cases, ultrasound enables immediate diagnosis, accelerating treatment and sparing patients the costs and radiation burden of needless MRIs or CT scans.

In our practice, ultrasound has uncovered serious abnormalities that could not have been found through the physical examination, including more than 50 cases of thyroid and other cancers. In a workup of a patient whose hypertension failed to respond to drug therapy, an ultrasound study revealed bilateral nodules in his thyroid, which led to the diagnosis of medullary



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carcinoma of the thyroid. Further workup led to the discovery of a parathyroid adenoma and bilateral pheochromocytomas and thus the diagnosis of multiple endocrine neoplasia. Because of the genetic nature of this disease, his family was studied with ultrasound. His two sons proved to have medullary carcinoma of the thyroid. Given the poor prognosis of this disorder without medical intervention, this was a case in which an ultrasound study performed at the point of care may have saved not just one, but three lives.

Another recent case highlights the cost-effectiveness of using ultrasound to diagnose cardiovascular disease in patients. A female patient in her 50s had major cardiovascular risk factors, caused by many years of tobacco use. Through performing an ultrasound examination, we diagnosed severe carotid artery disease and initiated treatment to reduce her risk of a stroke.

Such findings are not uncommon when vascular ultrasound is performed: The New York Physicians study reported overall plaque prevalence of 32.8% among women and 40.5% among men aged 50 to 64 years. Among subjects with plaque in this age group, 50% of women and 31% of men had plaque exclusively in the femoral artery, suggesting that ultrasound screening of the carotid and femoral arteries can identify potentially high risk subjects for whom intensive CVD risk modification may be appropriate. (Postley et al. Prevalence and distribution of sub-clinical atherosclerosis by screening vascular ultrasound in low and intermediate risk adults: the New York Physicians study. *J Am Soc Echocardiogr.* 2009;22:1145:51.)

Used appropriately, ultrasound screening has a significant potential to prevent or reduce costly catastrophes. The American Heart Association estimates the mean lifetime cost of ischemic stroke in the United States at \$140,048 per patient. Coronary heart disease (CHD) is even costlier: For women enrolled in the Women's Ischemia Syndrome Evaluation (WISE) study, the average life cost estimate was \$770,000 and ranged from \$1.0 to \$1.1 million for women with 1- to 3-vessel CHD. Overall, CVD costs more than any other diagnostic group, consuming about 15% of the total health care budget. In our practice, of more than 1,000 patients with vascular disease we diagnosed using ultrasound, which we also use to evaluate the ongoing effectiveness of their treatment, only three of them progressed, while many others have had significant regression of plaque.

In a 2009 lecture at Harvard Business School, Michael Porter, an influential thinker on management and competitiveness, advocated "value-based health care," where the key goal was to improve patient outcomes per dollar spent. To be truly efficient, Porter observed, all of the key players—policy makers, administrators, physicians, insurers, and patients—must focus on quality, because doing so improves outcomes, lowers costs, and thus increases value. Through more than a half century of use to aid diagnosis and guide procedures, ultrasound has demonstrated in both studies and clinical practice that it can—and does—deliver proven value when available for use at the point of care. It is essential to maintain these gains in patient care and treatment by protecting access to this safe, cost-effective technology in a physician's office.

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