

Outcomes: Where the Rockets Come Down

Michael S. Huckman¹

While I was serving as an officer of the American Society of Neuroradiology in 1988, one of our colleagues, Dr. Jim Dreisbach of Denver, suggested that the Society involve itself in "outcomes research." It was a new concept to me at the time and, like many neuroradiologists, I tended to look upon my work as did the rocket scientist in the satirical song by Tom Lehrer in which the lyrics say

"Once the rockets are up, who cares where they come down? That's not my department" says Wernher von Braun.

Dr. Dreisbach's comment piqued my interest and I was determined to learn the planned role of this concept in the future of health care delivery and its specific relationship to neuroradiology. For this reason, I invited Mr. Vincent Bucci to review this subject with particular attention to how it might affect neuroradiology [1].

While Mr. Bucci points out that most of the outcomes of imaging research will be intermediate data that must be linked to the eventual outcome of subsequent therapeutic interventions, it is incumbent upon neuroradiologic research not only to describe the imaging correlates of normal and pathologic anatomy but to begin defining appropriate end points for the evaluation of how effectively neuroimaging techniques lead toward a proper therapeutic outcome, cost-effectiveness, and patient satisfaction. In other words, neuroradiology cannot measure its success merely on the basis of having arrived at a correct diagnosis. While the importance of that should not be underestimated, the true outcome of that diagnosis must be evaluated in terms of subsequent end points. These other

end points must include cost-effectiveness and patient comfort, and go beyond diagnosis to prognosis. In the future, to bring a new drug, surgical technique, or imaging device to the point where Medicare will reimburse for its use, the manufacturer will not only have to prove safety but also effectiveness. We cannot be content to report only the diagnostic signs of a particular tumor but must carry our research to the point where the disease has run its course and reevaluate the initial findings in terms of how they may, perhaps in retrospect, have predicted the outcome and whether the method of diagnosis was cost-effective and comfortable for the patient.

Mr. Bucci points out the pitfalls in outcomes research when there are inaccurate data bases. Neuroradiologists must work with those in allied medical disciplines, government, and industry to establish legitimate data bases that, when used to test hypotheses, will produce a believable result. If not, we may be forced to accept practice patterns contrary to satisfactory therapeutic outcome, reimbursement schedules that do not reflect the true measure of effort, and levels of patient comfort below the ideals of a caring professional.

We believe that those among us who perform interventional neuroradiology have truly wrought miracles. However, now is the time to assess the value of these procedures over the long term in an objective fashion. The establishment of strict end points for clinical outcome and the creation of large cooperative data bases, in conjunction with our neurosurgical and neurologic colleagues, must be undertaken if we are to credibly decide how endovascular techniques ultimately compare with conventional neurosurgery. As a spin-off, such

This article is a commentary on the preceding article by Bucci.

¹ Department of Diagnostic Radiology, Rush-Presbyterian-St. Luke's Medical Center, 1653 W. Congress Parkway, Chicago, IL 60612. Address reprint requests to M. S. Huckman.

studies will inevitably lead to objectively derived training standards for performing these procedures rather than the arbitrarily conceived ones toward which we are now drifting.

There is no question that the Health Care Financing Administration is determined to fill a void in the evaluation of health care effectiveness [2]. The powers that be in other medical specialties are exhorting their colleagues to seize the initiative and ensure the fairness of this process [3, 4]. I urge those of you who contribute to this journal to initiate and participate in studies that quantify the therapeutic, diagnostic, prognostic, and financial values of the examinations and procedures of neuroradiology. In addition to showing the outcome of neuroradiologic procedures, neuroradiologic examinations may also serve as markers of the outcome of certain types of therapeutic intervention. Establishment of these markers will be a fertile area of endeavor for neuroradiologists.

The preoperative diagnosis of glioblastoma has come a long way since Walter Dandy's pneumoencephalograms, even though the prognosis remains as grim as ever. Finding a new radiologic sign to distinguish a glioblastoma from a metastasis is unlikely to greatly change the therapeutic outcome. However, well-controlled studies that evaluate similar methods of diagnosis, cost, and patient comfort will benefit physicians, patients, and those who finance our health care system. The *American Journal of Neuroradiology* is eager to

receive studies that address these issues in the evaluation of neuroradiologic tests. If we assume a back seat in the initiation of this process, we may not be pleased with who ends up as the driver.

A journal article that describes the neuroradiologic criteria for a specific diagnosis with all the tests at our disposal is akin to launching Mr. von Braun's rocket. However, society now demands that we begin to care about "where the rocket comes down" and that means not only assuring that a neuroradiologic examination is accurate but also that it is cost-effective, safe, requested in appropriate situations, and performed with regard for the patient's comfort.

REFERENCES

1. Bucci V. Health outcomes research: its influence on clinical decision making and the development of new imaging technologies. *AJNR* 1991;12: 397-399
2. Roper WL, Winkenwerder W, Hackbarth GM, Krakauer H. Effectiveness in health care: an initiative to evaluate and improve health practice. *N Engl J Med* 1988;319:1197-1202
3. Rineberg BA. A call to leadership. The role of orthopaedic surgeons in musculoskeletal outcomes research. *J Bone Joint Surg [Am]* 1990; 72-A:1439-1440
4. Cowell HR. Hard decisions from soft data. *J Bone Joint Surg [Am]* 1990; 72-A:1441