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Presidential Address

Reality-based Relative Value Scales

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In recent years, health-care delivery in the United States has undergone an evolution. The speed and magnitude of this evolution have, in many cases, overwhelmed traditional tenets of patient care, and issues related to reimbursement, length of stay, patient access to specialty care, and fraud have dominated the health-care debate. More importantly, these issues have overshadowed and minimized the single most essential component of American health care, the relationship between the physician and the patient. The result of this change in focus away from the doctor-patient relationship has been twofold, an erosion of trust among the public toward physicians and a growing pessimism among physicians regarding the value of their efforts. In concert, these perceptions are creating a self-fulfilling prophecy that is eroding the core values of medical practice.

I am optimistic that logic will prevail to reverse these changes. I prefer to view the current state of health care in this country as an evolutionary process. The analogy to evolution—social Darwinism—is entirely appropriate here. In his book, *The Beak of the Finch* (2), Jonathan Weiner described a 20-year longitudinal study of evolution among several species of ground finches on Daphne Major, an island in the Galapagos archipelago. The most notable feature of these finches, and how they responded to natural selection, was related to the size and shape of their beaks (*Fig. 1*). The finch beak is, in essence, the tool that the various species use to exploit highly characteristic environmental niches. The remarkable finding of this study was that beak evolution occurred in a relatively rapid, cyclical fashion. During normal years with adequate rainfall, seeds were plentiful and competition was less. Within each species a variety of subspecies flourished, and there was considerable overlap in beak size (*Fig. 2*). During periods of extended drought and scarcity of seeds, however, some subspecies flourished because of specific competitive advantages. Owing to their lesser energy requirements, small finches with small beaks were most successful in competing for small seeds. For larger finches, a subspecies prospered with larger beaks capable of breaking bigger seeds that were inaccessible to birds with small beaks (*Fig. 3*). Differences as small as 0.5 mm in beak size were critical to the survival of certain subspecies. In other words, each subspecies became a specialist determined largely by the size and shape of their beaks. During times of limited resources, competition increased and natural selection acted through seemingly minor characteristics to determine survival or extinction.

The extended drought on Daphne Major was followed by an unprecedented period of rainfall, which completely transformed the environment of the island. Although seeds again were plentiful, vines and other flora supplanted cactus, which certain finches used for mating and nesting. Two evolutionary processes resulted (*Fig. 4*). First, the finch species that had successfully adapted during the drought were markedly favored; the subsequent generations capitalized on the success of previous adaptations. Second, cross-species hybrids emerged to take advantage of new niches created by the changing environment.

There are several important lessons for neurosurgery derived from this analogy. First, small and seemingly inconsequential competitive advantages are critical during times of drought in determining which subspecies will flourish. In medicine, this might apply to specialties, to medical centers, or to individual practices in a competitive community. In all of these settings, the ability to rapidly adapt to a changing environment and to capitalize on small strengths are imperative to survival. Second, droughts inevitably end, although the subsequent environment may be radically different and offer new challenges and new opportunities. Third, changes in the environment may create niches that can be exploited by new, hybrid subspecies. In neurosur-

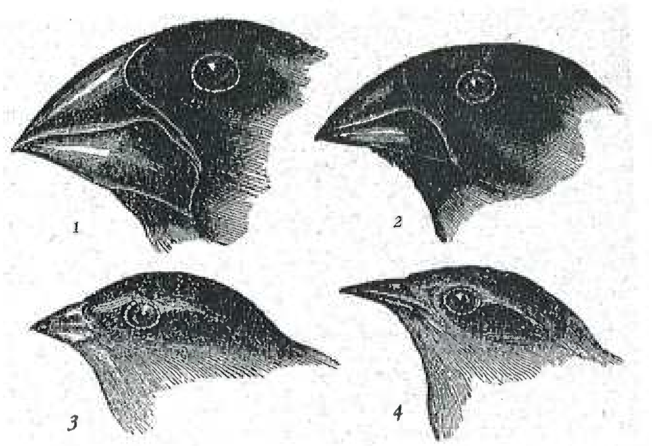

Fig. 1 Variation in beak size and shape among ground finches on Daphne Major.

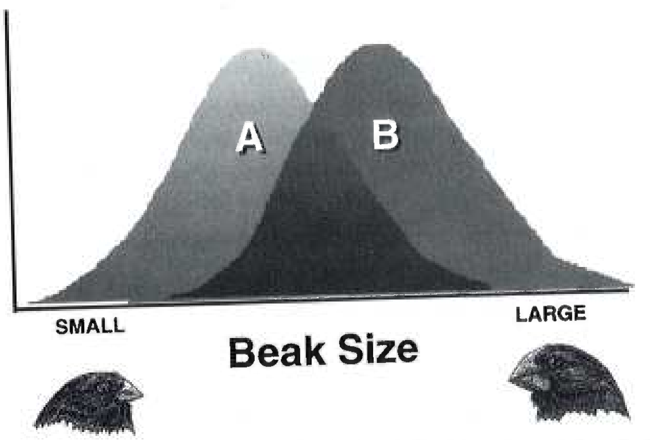

Fig. 2 Schematic representation showing the distribution of beak sizes of two finch species (A and B) during a period of normal rainfall.

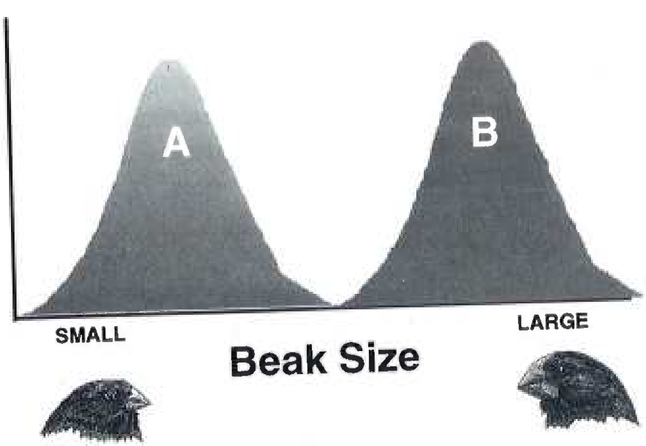

Fig. 3 Distribution of beak size during drought.

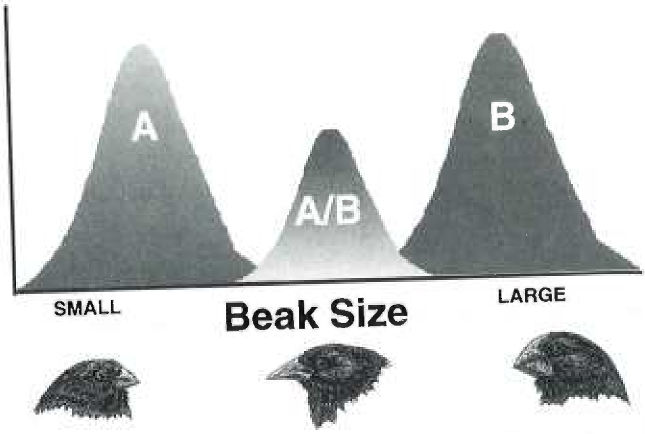

Fig. 4 Distribution of beak size during a period of heavy rainfall after a drought.

gery, in particular, we need to maintain an emphasis on those strengths, however minor, that will enable us to flourish as seeds again become more plentiful. I will return to these concepts again in this discussion, as we explore the competitive advantage of *value* in the current state of American health care and the potential for enhancing value in the future.

In 1985 to 1987, Congress passed the Consolidated Omnibus Budget Reconciliation Acts, which established the Medicare Resource-Based Relative Value Scale (RBRVS). The objectives of this legislation were two-fold—to create more equitable fees between specialists and primary care physicians and to constrain Medicare physicians' expenditures. The Health Care Financing Administration used this methodology to establish relative values in RBRVS units for most Current Procedural Terminology codes that became effective in 1992. Payment according to RBRVS is calculated according to the following formula:

$$\text{Payment} = \text{CF} \times [(\text{RVU}_{\text{work}} \times \text{GPCI}_{\text{work}}) + (\text{RVU}_{\text{PE}} \times \text{GPCI}_{\text{PE}}) + (\text{RVU}_{\text{M}} \times \text{GPCI}_{\text{M}})]$$

where CF = conversion factor, PE = practice expense, M = malpractice, RVU = relative value units, and GPCI = Geographic Practice Cost Index.

In essence, this approach assigns a relative value to any particular physician activity, which translates into a price. RBRVS has since expanded into all sectors of health-care reimbursement. The illogical and arbitrary nature of the RBRVS formula was epitomized this past year in a debate concerning the practice expense component of the formula, in which proposed changes would have reduced reimbursement to neurosurgeons and cardiothoracic surgeons by 30 to 40%, whereas providing equivalent increases to chiropractors and podiatrists. In my opinion, the absurdity of this approach is characteristic of legislative meddling in health care. On a superficial basis, RBRVS has failed to equilibrate reimbursement among specialties and may, in fact, have promoted expansion of health-care costs. More importantly, RBRVS has created a deeper and more insidious effect on health care in the United States. By equating the relative value of physician services to a capricious formula linked to monetary reimbursement, RBRVS has perverted real value of what we do—healing patients. In short, RBRVS has created a system that equates price and value, which, in fact, are not equivalent. It has been said that price is equivalent to value plus a reasonable sum for the wear and tear of conscience in demanding it. I contend that the "wear and tear of conscience" imposed by RBRVS has undermined the integrity of medical care in this country.

Is unit price an accurate reflection of the value to society for the activities that neurosurgeons perform? Perhaps a comparison to specialists in other professions is pertinent. The current Medicare reimbursement for carotid endarterectomy in Seattle is $1396. Ken Griffey will earn $45,000 for each game he plays in 1997, not including endorsements. Shawn Kemp earned $120,000 for each game, but was not satisfied with that reimbursement. On the other hand, a high school teacher in Seattle earned approximately $25 for each lesson prepared and taught last year, and a firefighter earned $250 for each duty shift. The point is that, in Seattle at least, monetary reimbursement by unit activity is not by any means an accurate reflection of the true relative value that society places on professional merit.

In traditional business analysis, value is defined as quality/cost. I would contend that for neurosurgical patient care, in recent years we have focused on cost while ignoring quality. This is not to say that the quality of care has suffered, but rather that we, as care providers, are ignoring something that our patients have long recognized—neurosurgery is a difficult, technically demanding profession that is limited to a select group of dedicated individuals. It is not a coincidence that neurosurgery and rocket science are benchmarks of intellectual excellence. What are the features of neurosurgery that society values as determinants of quality? First and foremost must be the willingness of the patient to establish trust with the physician and to relinquish personal authority. In the case of the nervous system, this initial trust is immense, as the patient often places in the surgeon's hands the very basis for existence—intellect, communication, mobility, and independence. In a busy practice, we underestimate the level of fear our patients must overcome and the simple courage of their act in honoring us with their trust for making such existential decisions. To initially establish that trust, patients rely on several features of quality that are implicit in the practice of neurosurgery—a basic scientific and intellectual background, technical competence, dedication, and experience—all of which society perceives to be of the highest quality in neurosurgeons. This is our trademark, our "brand name" quality; however, these initially perceived attributes must then be supplanted by personal and emotional factors for the full development of trust between neurosurgeon and patient, the trust that determines the ultimate quality of neurosurgical care. These factors include simply honesty, integrity, and compassion. This is not the Boy Scout oath, these are the real moral virtues that apply to any relationship in which trust is involved. Because trust is so immense for neurosurgery, so much at the core of the patient's existence, these moral virtues are even more important. They predispose an ethical and professional commitment to the patient and simple compassion toward another human being. Our patients recognize quality in neurosurgery and know that physicians, rather than health plans, length of stay, or reimbursement, determine the true quality of the care they receive. This perception of quality, and subsequently value, is based on a covenant of trust between the doctor and the patient, and not upon cost.

Whereas patients seem to recognize and appreciate the true value of neurosurgical care, I am concerned that *we*, as a profession, have forgotten its merit. I am firmly convinced that this is the result of several factors, RBRVS, physician profiling, limited access to patients, and perceived competition within and outside of our specialty. Beset by these external pressures, we forget about the value of neurosurgery to ourselves, in our own lives. This value might be the clarity of focus and the simple beauty of the brain or, perhaps, the technical challenge of a difficult procedure, the tired satisfaction at the end of the case. There is the intellectual challenge of understanding the human nervous system, the most complex entity in the known universe. Perhaps the greatest value, though, is earning the gratitude and respect of patients and families, helping them face extreme adversity, and sharing the joy and sorrows of their lives. These are the reality-based relative values of neurosurgery.

Returning to the evolution analogy, where do we stand today and how do we adapt for the future? First and foremost, we need to provide the highest value to patients by maintaining the integrity of our profession. Clearly, documenting quality of care through outcomes analysis, maintaining efficiency without sacrificing quality, and effectively communicating with patients and payors will help neurosurgeons compete during this time of scarce seeds. But more importantly, by maintaining the strength of integrity that defines neurosurgery, our profession will preserve the perception of quality, and subsequently value, that our patients recognize. Darwin (1) predicted that during times of environmental stress, competition would likely intensify among similar species. For neurosurgeons, this may represent orthopedists, pain management specialists, vascular surgeons, or neurosurgeons. As with the Daphne Major finches, we may need to "change our beaks" to capitalize on specialized niches. One strength of organized neurosurgery has been its unity and ability to resist fragmentation into subspecialties. That approach may no longer be entirely tenable in a changing health-care environment, which favors adaptable finches over mastodons. A Joint AANS/CNS Task Force is currently investigating the role of fellowship training in neurosurgery. The breadth of neurosurgery is considerable. It is no longer realistic to propose that all neurosurgeons can perform every aspect of neurosurgery at the highest level of quality. I believe that neurosurgical training programs should be restructured to recognize the need for subspecialists in the immediate future. In addition, remember that new niches on Daphne Major after the drought were filled by hybrids resulting from cross-species mating. Whether it be spinal instrumentation, endovascular treatment of aneurysms, or multimodality therapy for pain, neurosurgical program directors must recognize the need for cross-fertilization with other specialties. This will enable the next generation of neurosurgeons access to the tools that will allow them to compete in a rapidly evolving health-care environment.

The final aspect of the evolutionary example was the cyclical nature of changing environmental pressures. I hope that this past year may be viewed as a watershed, during which the pendulum of health care changed direction. Widespread recognition of managed care abuses, legislation relating to practice expense, access to specialty care, and gag rules are all encouraging signs. In addition, there has been a realization among Congress and the general public that medical research and development in the United States, epitomized by the National Institutes of Health, are national treasures that should be enhanced. In this regard, now is the time for neurosurgeons to redouble their efforts in basic and applied research of the central nervous system. The current health-care arena has had a chilling effect on basic research in neurosurgery, as many academic programs have devoted energy to simply staying viable. The esteem of the American public for rocket scientists and neurosurgeons is not coincidental, space and the human nervous system remain the two greatest uncharted frontiers. As neurosurgeons, we are the only physicians who directly venture into the human nervous system. This is our niche, but it is rapidly becoming no longer exclusive. On Daphne Major, the finches' beak is an adaptable tool. Despite our wondrous technology, the greatest tools of the neurosurgeon are intellect and scientific inquiry. We must exploit those tools through basic and applied research to flourish. The responsibility for this rests on the shoulders of all neurosurgeons, not merely program directors. The neurosurgery species is not endangered. It must, however, maintain integrity and be able to rapidly adapt in the changing health-care environment.

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