Neurosurgery: A profession or a technical trade?

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Abstract

The American Association of Neurological Surgeons (AANS), 11 years ago converted its Internal Revenue Code (IRC) tax status from a 501 (c) (3) to a 501 (c) (6) entity. By doing so, the professional medical association, now a trade association, was able to more aggressively lobby, support political campaigns, and pursue business opportunities for its members. In the following decade, major changes were seen in the practice of neurosurgery, especially as it relates to spine surgery. With the majority of neurosurgeons limiting themselves to a spine practice, an increased number of spinal procedures, most noted in the Medicare population, was recorded. For example, a 15-fold increase in complex spinal fusions for spinal stenosis was seen between 2002 and 2007. While the basis for this increase was not readily apparent, it was associated with a reduction in reimbursement per case of about 50%, fueling the belief that the increase in complexity of surgery permitted recovery of fees in complex cases to offset the loss of reimbursement for simpler cases. Considering the growth of spinal surgery within neurosurgery, and decrease funding for spine surgery, in the future there may be too many surgeons chasing too few dollars. There appears to be within neurosurgery a crisis developing where future manpower projections do not realistically match future anticipated specialty funding.

Key Words: Business, fusion, manpower, neurosurgery, spine, trade association

INTRODUCTION

The debate over whether the profession of medicine is becoming a “business” has been in the Western World since there has been a Western World, or at least as long as there has been one with commerce and medicine. Complicating the debate is the lack of definitions for such terms as business and costs, when applied to health care. Additionally, the concept of the business of medicine is poorly received in medicine, especially by physicians. However, this is changing, witness the following quote that appeared in a recent publication: A particular concern among surgical residents and junior attending surgeons appears to be the decline of the traditional “private practice” business model for which surgeons have long been known (emphasis added). Neurosurgery appears to be actively and aggressively chasing business models. Despite its relatively small size, neurosurgery has often been a leader in examining and explaining sociopolitical and socioeconomic trends in medicine, especially among the surgical specialties. In this essay, this current adventure of neurosurgery is dissected and analyzed.
ORIGINS

In lands where most of our Western thought first was spoken, medicine has had its own defined role in society, its own history, and its own heritage, separate from that of business or commerce, or entrepreneurial sophistry. Its father (or god) is Aesculapius, son of Apollo. It has an Oath (an origin for its ethics), pronounced by Hippocrates (who becomes the father when Aesculapius is elevated to the position of god by an enthusiastic story teller). And it has its own symbol, a straight staff or rod intertwined by a single serpent, known as the staff of Aesculapius.\(^{[31]}\)

Business also has its heritage, its share of accoutrements; and a story slightly more complex. Its symbol is the caduceus, consisting of a single, bi-winged staff intertwined by two serpents.\(^{[16]}\) Initially, it was the staff of the Greek god Hermes, who held numerous positions on Olympus, including god of commerce and wind and air. When Greek was translated to Latin, Hermes became Mercury, the god of war. The wings became white flags of truce during cessation of war for peace talks. In time of peace, the flags were continued in support of the negotiations of commerce and prosperity.

Today it is very common to see the symbol of Hermes/ Mercury used to identify the medical profession. It is not clear the reasons for the persistent error, except for the ignorance of the one who is scheduled to promote whatever event at which the logo is expected to appear. But, this practice may have had its origin in the decision of the U.S. Army Medical Corps, in 1902 to adopt the caduceus as its symbol, perhaps referring back to its flags of truce during war, when temporary halts in battle were called on the battlefields of 19\(^{th}\) century Europe, so the dead and wounded could be collected and removed from the field.\(^{[15]}\)

However, the debate, or conflict, over medicine, profession or business, probably has no connection to the foregoing. In 1982, the Federal Trade Commission held that medicine was a commercial venture, as any other business, and its practitioners were free to advertise as any other businessman in the US.\(^{[11]}\) The U.S. Supreme Court failed to overturn this decision, and medicine has been trying to redefine itself ever since. The American Association of Neurological Surgeons (AANS) appears to have commenced such a journey of redefinition.

CONVERSION

In 2003, the AANS adopted bylaws to qualify it as a nonprofit organization under Section 501 (c) (6) (abbreviated hereafter as c-6) of the US Internal Revenue Code (IRC). Previously classified as a 501 (c) (3) (abbreviated here as c-3) entity under the IRC, this move permitted the AANS to be more active in lobbying, campaigning, advertising, marketing, and economically supporting those who represented the business interests of its members, as would a trade association. In fact, in Article I, Section 2, of its new bylaws, the AANS is defined as a trade association. A trade association, also known as a business league or a business association, is a nonprofit organization founded and operated to provide services to its members.\(^{[16]}\) The primary responsibility of a trade association is to further the business interests of its member businesses. The member businesses of this trade association are the neurosurgeons, whether in solo practice or represented by some other legal business structure, who are members of the AANS. The record does not expose a specific red-letter basis for this change. Letters to the old AANS membership from two AANS presidents whose tenures overlapped the process, Roberto C Heros, MD and A. John Popp, MD, were relatively opaque in that they called for “change” without elaboration (copies of the letters are in the author’s files). Regardless of the reasons, the AANS voluntarily sought this change.

In addition to a restructured AANS, a new entity was created, the American Association of Neurosurgeons, a c-3 organization, as a companion to the AANS, whose name was retained for historical purposes, including name recognition. The primary responsibility of a c-3 organization is to generate benefits for members of a charitable class, such as disaster victims, or those in the general public, for example, the homeless. In other words, the c-3 entity benefits directly persons outside the organization, while the c-6 entity benefits persons who are members inside the organization.

Often, in the tax codes where subtle distinctions are made between entities, carefully crafted descriptive language is very important in transmitting intent. In Table 1, compared are Article I, Section 2 of the bylaws (as approved by the AANS membership in 2003). The portion of each set of bylaws presented contains the Purposes and the Principles of the two organizations. The language of the Association (the c-3 organization) is that associated with nongovernmental relief organizations, religious institutions, and some universities, and includes these descriptive phrases: Pursuit of excellence, excellence in medical education, high standards, quest for scientific knowledge, the best in neurosurgical patient care. It is the language of the scholar, the empathetic intellectual, the professional. In the scrutiny of the Purposes and Principles of the AANS (the c-6 organization), these phrases were encountered: The interests of patients, communication interface, neurosurgical opinion, standards of neurosurgical care, policy positions, government bodies. This is the language of the developer, the entrepreneur, the pragmatist. A 2002 edition of the Bylaws of the AANS when it was still a c-3
Table 1: Bylaws (2003)

| AANS                                                                 | Association                                      |
|----------------------------------------------------------------------|--------------------------------------------------|
| Section 2: Purposes and Principles                                   | Section 2: Purposes and Principles               |
| The AANS has been established as a trade association under 501 (c) (6) of the Internal Revenue Code. The AANS exists for and is dedicated to the following purposes and principles | The Association exists for and is dedicated to the following purposes and principles |
| To promote the interests of patients and the neurosurgical profession | The advancement of and the pursuit of excellence in neurological surgery and related sciences |
| To provide a communication interface with other groups and represent neurosurgical opinion to preserve and achieve the principles and purposes of the AANS | The pursuit of excellence in medical education especially as it concerns the neurological and surgical sciences |
| To establish standards of quality care for neurosurgical services    | The communication of scientific and scholarly information through scientific meetings and publications |
| To establish policy positions on major issues that effect all Members of the AANS | The pursuit of high standards of excellence in the practice of the neurosurgical profession |
| To represent the interests of neurological Surgeons before federal, state, and local government bodies | To support the quest for scientific knowledge by research endeavors in related fields |
| 501(c) (6)                                                           | To uphold those principles, policies, and practices for the attainment of the best in neurosurgical patient care |

AANS: American association of neurological surgeons

entity, revealed its Purposes and Principles were almost identical to those of the Association. Other groups found in this class include other medical societies, bar (of law) associations, chambers of commerce, and the National Football League.

FIRST LESSONS

It is not clear, from a review of the past 11 years, how effective this arrangement has been for neurosurgery. The new c-3 entity has had little more than a perfunctory role in the practice of the neurosurgeon. However, services the AANS provided its members before the conversion are still being provided, with improvements consistent with growth in technology. The c-6 entity has inherited from the old AANS its name. It remains the largest and most influential organization of neurosurgeons in the world. It has an annual educational conference that is the model for continuing medical education for neurosurgeons. At this educational conference, it has a well subscribed Exhibit hall for industry to display its wares. Its Journal of Neurosurgery is second to none when it comes to quality of contents. The Washington, DC, office of the AANS, which predated these happening, remains very active, assisting neurosurgeons in direct lobbying and other political and economic activities on behalf of neurosurgery.

The AANS web site (www.aans.org) is quite sophisticated, with a myriad of tools to create and launch programs for advertising and marketing, available to the practitioner. Also available are formal programs of instruction to assist the practitioner in the business of managing an office, to include courses in Coding for billing purposes and in Executive level management, maintaining the license to practice medicine, and, in some cases, maintaining certification in neurosurgery.

This record is certainly one to be expected of an active and energetic trade association, such as the AANS. However, this move by the AANS, in which it captured a proactive eminence in business matters of concern to neurosurgery, has been associated with a complex, multifaceted alteration in the culture of the practice of neurosurgery—some changes were hoped for, others were unanticipated. Because these changes may have unsettling, even dire, consequences for neurosurgery in the not too distant future, they must be closely examined.

From the beginning of this adventure, good relationships have been quick to develop among the neurosurgeons, the AANS, and industry which either were not there before, or which blossomed quickly after the conversion (for future reference, the term “industry” will refer collectively to those for-profit companies who support, in any and every way, spine surgery). These relationships strengthened rapidly and became the sources of important and substantial streams of business, which, to the IRS, includes any activity between parties for remuneration. It is this complex, tripartite relationship, and the changes it has created that has produced some of the major challenges in the practice of neurosurgery in the past decade or so.

These changes in neurosurgery have been registered, primarily, within the practice of spinal surgery. Although ramifications of some of these changes have been felt throughout the scope of neurosurgical practice (e.g., neurosurgical endovascular therapeutic skills), no other segment of this practice has received comparable notoriety in the medical science literature, or with the lay press. Therefore, in looking for the causes of these changes, it is appropriate to look in depth at the practice of spinal surgery by neurosurgeons.

SPINAL SURGERY

As a point of reference, it should be noted that patients with diseases of the spine requiring surgery are also taken care of by orthopedic surgeons. At least since the early
1980s, there has been open competition between the two surgical specialties for these patients.\(^{[26]}\) Groups of orthopedic spine surgeons currently have not only c-6 designation, primarily for lobbying, but also for business orientation.\(^{[24]}\) Despite the foregoing, most of the general data about spinal surgery is presented without specialty allocation. Because surgeons in both specialties attend the same spine meetings, and have access to the same literature and the same surgical instruments, it will be assumed that conclusions drawn from grouped data are as applicable to one specialty as the other, unless identified otherwise.

From a survey of neurosurgeons in Texas, conducted by the Texas Association of Neurological Surgeons some 5 years after the AANS made its move, Jimenez reported that 61% of the respondents devoted 70% or more of their practice time to spine disorders.\(^{[19]}\) During a study of neurosurgical manpower in the United States in the late 1970s and early 1980s for the Graduate Medical Education National Advisory Committee, Mendenhall et al. reported the average general neurosurgeon spent less than 55% of his time on spinal disorders, with less than half of that time devoted to degenerated disc and joint disease (DDJD).\(^{[22]}\) These data are from different eras and different investigative methodologies and therefore are statistically noncongruent, except for the most general of conclusions: The data come from the neurosurgeons themselves, and they say they are spending a greater percentage of their time currently taking care of patients with spinal disorders, meaning DDJD.

Of the elements of the tripartite relationship (i.e. AANS, the neurosurgeons, industry), each has its strength and weaknesses, and its role in the search for business. Industry desires to expand opportunities for its businesses, by promoting spine surgical instruments. The AANS, being the trade association for neurosurgery, of course, wishes the best for its businesses. And the neurosurgeons, businessmen in this scenario, look to enhance their business opportunities.

Those in industry were not ignorant of the debates within neurosurgery over the years about the need to be aggressive in searching for ways to enlarge the scope of neurosurgical practice. As they watched the conversion, they prepared themselves to meet the growing needs of neurosurgery. They began immediately to develop contracts with individual surgeons, who were opinion leaders in neurosurgery and who could advise about the design of spine surgery instruments. As a result, during the past decade leaders from academia, including appointed and elected officers of the AANS, members of editorial boards of medical science journals, and university professors, have sat, along with accomplished leaders from the private world, as advisors to manufactures of spinal instrumentation systems used in surgery. Most of the supporting information for these assertions is not found in medical scientific journals, but in anecdotes imbedded in court documents, investigative letters of inquiry, and public records of surgical supply companies, as reported in leading national newspapers.\(^{[7]}\)

Of considerable ironic interest was the observation that except for some philosophical musing of theoretical conflicts of interest, there were no findings of miscreant behavior in these relationships, even though millions of dollars in consultant fees and royalties were involved. On the other hand, in open studies involving the use of rhBMP-2 in anterior lumbar fusions, audits of the published papers yielded no reports of serious complications, although later review recorded significant numbers of serious causes of impotency, such as retrograde ejaculation.\(^{[6]}\) In other words, the efforts closed to public scrutiny seemed to have a better record of professional behavior then those who performed under the public’s eye.\(^{[6]}\)

Streams of business developed without difficulty among the principals. AANS accommodated the interests of industry and provided not only appropriate exhibit space at its annual meetings, but insured time on the program in the lecture halls for presentations by the neurosurgical consultants to the companies. The neurosurgeons, responding actively, began to use the newer instruments for more complex conditions. Some companies, in order to capture their share of the market, placed some of their instrument technicians at the call of the surgeons to help them in the operating room (OR), as they became familiar with the new equipment while it was being used on patients.

When surgical instruments are easy to use and make difficult cases easier to manage with lower complication rates, aggressive surgery will be performed, as technology replaces science as the benchmark of clinical decision making.\(^{[4]}\) The AANS sponsored the writing of surgical standards, such as the one on fusion for chronic back pain, issued in 2005,\(^{[23]}\) which influenced the movement of patients to spine surgeons. At other times, the AANS seemed to promote individual entrepreneurship by not sponsoring standards, as with the off-label use of rhBMP-2.\(^{[21]}\) With more surgeons spending more time with patients with spine complaints, with more indications for spine surgery, and with surgical instruments that make it easier to perform more complex procedures, it is not surprising that more spine surgery would be performed. Indeed, Deyo, summarizing from several databases, concluded in 2005 there had been a steady increase in spinal surgical procedures in general and especially in lumbar spine fusions in the previous few years.\(^{[9,11]}\)

Later, looking at the treatment of lumbar spinal stenosis, he concluded that although the rate of simple
surgical procedures for this condition was stable or had fallen slightly, the rate of treatment of spinal stenosis with complex fusions increased from 1.3 per 100,000 Medicare beneficiaries in 2002 to 19.9 per 100,000 in 2007, a 15-fold increase without a showing of increased disease complexity.\textsuperscript{[12]} In an accompanying editorial, Carragee, an orthopedic surgeon and Editor of The Spine Journal, independently reasoned that at least 50\% of the preoperative diagnoses did not warrant the more complex procedures.\textsuperscript{[9]} That is, up to 50\% of the complex procedures were inappropriate or, as some might say, unnecessary surgery.\textsuperscript{[15,29]} For the purposes of this paper, unnecessary surgery is that surgery performed for diagnoses for which there exists effective, less costly, simpler, and less hazardous procedures. According to Deyo et al., the use of the more complex procedures [Table 2] was accompanied by more complications, higher 30-day morbidity, greater use of resources, and higher hospital costs. These costs were increased 3-fold when the complex procedures were performed, from $23,724 per case to $80,888 per case. For the year 2007, the final year in the report by Deyo et al., \textit{Consumer Reports} rated spinal surgery as number one on its list of overused tests and treatments.\textsuperscript{[8]} What happened?

**PROFESSIONALISM VERSUS PRAGMATISM**

To answer the immediate previous question, it is necessary to return to the start of this adventure and recall it began from a deliberate attempt to seek business solutions to challenges the AANS faced with its members. As long as the story was wrapped around business contributions to the efficiencies of health care delivery, matters progressed well – website, journal, annual meeting. However, when the scene shifted from one of the delivery of health care to one of the practice of medicine, troublesome changes were seen. This latter state is one in which the patient and the physician should be closely bound by a special relationship of trust, duty, and care. There is no relationship of duty that binds, ethically or legally unrelated adults together as does this duty.\textsuperscript{[23]}

The checkbook may go to the banker, and the Will to the lawyer. But the ill body goes to the physician. A constellation of business principles may buzz around the focused pair, but the well established relationship is modified only from within. If the relationship should come apart for whatever reason, the practice of medicine, as defined over the centuries, ceases.\textsuperscript{[22]} Indeed, historically, the practice of medicine was initially defined by that special relationship between physician and patient. It is impossible for a physician to properly treat a patient while receiving from the patient trust less than the relationship requires.

When one sees results like those of Deyo \textit{et al.},\textsuperscript{[12]} it is difficult not to conclude the relationship that has been altered. While it is impossible to state from the data collected what the patients were told preoperatively – the options for surgery were rather straightforward – the procedure would be simple or of a complex format. No population in this country is going to be offered, nor would it accept, through a mature physician/patient relationship, a 50\% unnecessary surgery rate if these individual patients received appropriate evidenced-based input from the physician.

Therein may lie a major problem with the c-6 model. With the effort on the website of the AANS and that during the annual meeting, it is not difficult to envision a complete campaign for business fashioned solutions that was so intense, so inclusive, so universal the surgeons focused on their own business-related interests to the exclusion of those of their patients, with the consenting process lacking the objectivity the surgeon should possess.

The progressive, proactive atmosphere created by the trade association modified the basic process of analysis by the individual members; they functioned as businessmen, giving more weight to the interests of their businesses than to that of the customers (or patients) when it came to the primacy of interests. The special relationship in medicine between physician and patient is necessary for the practice of medicine; without that relationship there is no practice; there is only the delivery of health care.\textsuperscript{[23]} Thus, the practice of medicine, although supported by principles of business in, for example, the administrative management of the flow of patients, can never become the duplicate of a business. This is true, whether or not one is arguing the philosophical nature of the question, or/and especially if, one should address the ethical or legal definitions of the subject.\textsuperscript{[23]} Once the surgeon begins to consider his interests superior to those of the patient, and discharges his responsibilities accordingly, he becomes as any other of the healthcare providers.

Neurosurgeons need, just as every physician does, the tools of business to more efficiently practice today. The move by the AANS to acquire for its members those tools was bold, aggressive, perhaps radical, but understandable. Neurosurgeons must learn to view the business world from the angles the trade association provides, and be prepared to adopt its advice, as appropriate. Its tools are heavy duty and proven – capitalism thrives. The treatment plan

### Table 2: Surgical categories*

| Procedure        | Definition                                                                 |
|------------------|---------------------------------------------------------------------------|
| Ecompression     | Any combination of discectomy with laminectomy without fusion             |
| Simple fusion    | A single surgical approach with fusion limited to 1 or 2 disc levels       |
| Complex fusion   | Fusion of more than 2 levels 360 through one approach                     |

\*From Deyo \textit{et al.} (see ref \textsuperscript{[12]})
should be based upon the best medical science available to both, along with appropriate consideration for the art of medicine that, for example, helps the surgeon factor into the treatment plan human characteristics unique to the individual patient. Since Deyo et al., give no data to suggest uniqueness among the patients receiving the more morbidity-laden complex procedures, conclusions based upon considerations of revenue seem rational; whether due to a faulty business plan, a fascination with technology and its challenges, or simple greed, is unclear. But, the spine surgeon knows.

NEUROSURGERY: ITS FUTURE

In 1973, Richard Bergland predicted the demise of neurosurgery because too many surgeons were being trained and released into the economy, which was not big enough to accommodate their numbers. Although he was wrong, it may have only been as to the century. Some of the economic pressures were relieved when neurosurgeons found the spine in the early 1980s. This seemed to ameliorate the problem, temporarily. In 2003, James Ausman, however, in an editorial, found reasons to announce “The Death of Spine Surgery as We Know it Today.” He offered this conclusion after noting a significant growth in spine surgery and its costs. Today, the scene is similar to both 1975 and 2003. There is a disproportionate number of spine surgeons trying to make a living with a pot of funds ever decreasing in value.

Consider Table 3, as an illustration of this trend. The data was sent to me by a neurosurgeon in a group practice of six in a medium sized mid-western state (S Gaede, personal communication). It gives the actual payment for a simple 2-level decompression of the lower lumbar spine for spinal stenosis (CPT code 63046) received in 5-year increments since 1990, into 2014. In addition it provides the payment received for the most complex of the fusion procedures performed for that diagnosis (includes codes 63046, 22612, 22414, 22842). Actual payment for the simple decompression has fallen in 24 years from $1614 in 1990 to $1172 in 2014. Using as an index the CPI, and the year 1990 as the base, the value of change expected for the simple decompression went to $2900 in 2014 and for the complex instrumented fusion to $6227. This data coupled with the Deyo et al. data and the independent Carragee assessment leads to the unavoidable conclusion that an increasing number of surgeons were performing more complex procedures to offset the loss, over time, of revenue per procedure. A major component of the campaign by the AANS was the support of courses in the mastery of advanced and sophisticated billing code proficiency.

Without trying to predict what will happen to costs and the allocations of funds to pay for the changing health care system in the US over the next decade, it is clear with the reductions seen in Table 3, at some point, there will be too many spine surgeons chasing too few dollars. Cuts have been made, somewhat silently, or have been threatened, not only by government, but also by private insurance. Those surgeons who have abandoned the remainder of neurosurgery to focus on spine surgery may find reversing that track difficult, as if a bridge had been burned. If neurosurgery currently, through its education and training programs, is producing enough neurosurgeons to handle the nonspinal neurosurgery in the US, there will be little room for transfers from the spine surgery practices.

But, much of the surgery that was done on the nervous system only by neurosurgeons when I began my practice now has other suitors: Pituitary and acoustic tumors by otolaryngologists, vascular lesions (e.g. aneurysms, arteriovenous malformations) by neuroradiologists with catheters, peripheral nerves and at least their share of cervical spine disease by orthopedic surgeons, craniosynostosis by plastic surgeons, head trauma by critical care internists, and the list lengthens. Therefore, to the extent that organized neurosurgery has tied the future of neurosurgery to that of spine surgery, it must seriously revisit that strategy, looking at both training and practice scenarios. If these issues are ignored further, these dislocations will continue.

As to the focus on the c-6 strategy to enhance revenue through business planning, in the final analysis medical professionalism must carry the day. It will if neurosurgeons keep in mind that the trade association is responsible for and to its members; there is no primary place at the table for the customers of the members (their patients). Business can teach the neurosurgeon how to create business plans to manage an office, to invest more wisely, and to lobby more efficiently. The c-6 organization provides a strong and sure platform for that education. No business plan, however, regardless how simple and easy its operation will be able to create a sustainable schematic for the management of the patient as a patient. That is, no business plan will adequately replace, in and of itself, the mature physician/patient relationship.

Yet, a strong physician/patient relationship, created by the fusion of an amalgam of duty, ethics, art, and

Table 3: Payments and value of non-payments for surgery, 1990-2014

| Year | Lumbar decompression without fusion (630,46) CPI value | Lumbar decompression with fusion (630,46; 22,612; 22,614; 22,842) CPI value |
|------|------------------------------------------------------|--------------------------------------------------------|
|      | Payment | Base 1990 | Payment | Base 1990 |
| 1990 | $1614   | 1614      | 3463    | 3463      |
| 1995 | 1551    | 1876      | 3329    | 4069      |
| 2000 | 1184    | 2120      | 2742    | 4549      |
| 2005 | 1115    | 2387      | 2621    | 5122      |
| 2010 | 1206    | 2693      | 2795    | 5778      |
| 2014 | 1172    | 2900      | 2715    | 6223      |

CPI: Consumer price index, $: U.S. Dollars
During the past decade, neurosurgeons have held (buyer It was gleaned from a nationwide Medicare Part A database. The Manpower conversion. The data from Deyo and definable. And the data selected were gathered given the competitive relationships of these surgeons. The specific groups chosen for the data were identifiable by the AANS campaign, then most would have been two groups. If any group of spine surgeons was influenced in their background, with regard to training, literature, surgical instruments, and goals are indistinguishable between the two groups. If any group of spine surgeons was influenced by the AANS campaign, then most would have been given the competitive relationships of these surgeons. The specific groups chosen for the data were identifiable and definable. And the data selected were gathered during the first half of the period following the AANS conversion. The data from Deyo et al. was gleaned from a nationwide Medicare Part A database. The Manpower data from Jimenez were derived from an AANS publication, and the reimbursement data were selected and collated by a well established, stable group of six neurosurgeons. The medico legal comment referenced a study (to be published), which made use of the AANS National Neurosurgical Procedural Statistics 2006 Survey. The window of time from which all data was collected was 2002-2008, within the years of the Deyo studies, and the conversion of the AANS. The matches are sufficient to permit the illustrations made.

Eleven years ago, the AANS adopted the posture of a trade association when it changed its IRC tax status to a c-6) entity in order to provide greater support to its members, especially American neurosurgeons, as they sought to enhance their streams of business. Utilizing its websites and publications, its sponsored meetings including a large one held annually, and its sophisticated interactions with industry, and sponsoring surgical standards for spine fusions, the AANS aggressively carried out its purpose.

Because most neurosurgeons spend most if not all of their professional time performing spine surgery, this meant a significant increase in spinal procedures, the data so indicated, in the Medicare population. Indeed, there was a 15-fold increase in complex lumbar fusions between 2002 and 2007, without a demonstration of increased complexity of disease. Based upon preoperative diagnoses, mostly spinal stenosis, as many as 50% of these procedures were unnecessary, as simpler procedures were indicated. Reimbursement for these procedures may have been at least 50% less than 10 years earlier.

The aggressive promotion of business models by the AANS, coupled with 50% unnecessary surgery, suggests that the physician/patient relationship was unfavorably influenced by the business message, but there is no information regarding the consenting process. The manpower and the reimbursement data, while limited as to universal applicability, are useful in noting trends because of their sources.

If the impact of the business model promulgated by the AANS is as profound as the preceding discussion implies, neurosurgery is destined for an ignominious future, for how can one treat serious disease of the nervous system if the surgeon has in the patient’s opinion the credibility of the corner merchant. The leadership of neurosurgery must take a serious and comprehensive review of its experiment as a trade association, influenced by business planning. While such planning is invaluable in organizing and managing an office, negotiating fees, and designing facilities, it has no place in the treatment plan. Yes, there are times when the best medicine for a particular condition is limited because of supply, costs, or location. The phrase, “in the best interest of the patient”, must always carry the implied cautionary note,
“if reasonably available”. Nevertheless, the situation is for the surgeon to explain, for the patient to make a decision. Surgery, paid for by third parties, especially those patient who negotiated with prior to becoming ill, cannot be justified with the argument that under well designed business plans, more complex surgery would satisfy the most basic economic rule in the capitalistic system, “do all authorized to maximize return on investment.” Just because a comprehensive Coding system for billing has a unit for the procedure, this is no basis for performing the procedure.

If the majority of neurosurgeons are limiting their practices to spine, and continue to do so, and reimbursement continues to fall, the forecasts of Bergland and Ausman may become a reality. The loss of clinical material once thought solely neurosurgical has been noted in the text. Unknown is the extent of that loss. This must be determined as soon as possible, and educational programs altered accordingly, to turn spine surgeons back into general neurosurgeons. Of course the leadership is free, because of its c-o status, to lobby for more funding, but the expected fiscal state of our health care system over the next decade suggests futility.

This story began with the neurosurgeons in America, through their organization, the AANS, seeking to adapt the delivery of health care in their hands through business models. This process was efficiently promulgated by spinal surgeons, who began to substitute more complex surgical procedures for simpler ones, utilizing more sophisticated billing coding systems. As the numbers of surgeons entering into spine surgery increased, the number of complex procedures increased, with rising complications and costs.

For some time organized neurosurgery has declared its scope of practice is the peripheral nervous system, and the central nervous system with its support structures (e.g. spine and cranium), and its blood supply—the carotid and vertebral systems. This sounds as if neurosurgery has opted to be the primary provider for diseases of the nervous system. How is this possible when 70% say their practice loss. This must be determined as soon as possible, and educational programs altered accordingly, to turn spine surgeons back into general neurosurgeons. Of course the leadership is free, because of its c-o status, to lobby for more funding, but the expected fiscal state of our health care system over the next decade suggests futility.

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