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Presidential address

Medical Competence—Education and Ethics

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Competent behavior is characterized as well qualified, capable, and fit. The components of medical competence are clinical judgment, medical knowledge, clinical skills, humanistic attributes, communication skills, and continuing education.

The prime rationale for the formation of the Congress of Neurological Surgeons in 1951 was to ensure the maintenance of a high level of competence among young neurosurgeons through the process of continuing education. The founders of our society recognized a need to fill a void between the completion of graduate neurosurgical education and the opportunity for participation in the proceedings of the senior societies. Moreover, the leaders of the Congress recognized that there was a need for education at a clinical level and that the opportunity for practical learning must be available to all neurological surgeons without consideration of certification requirements.

At the outset, the efforts of our society were largely participatory and were confined to the organization of an annual meeting that featured an honored guest speaker, always a scholar of great renown. All proceedings of these sessions were bound and published in a highly informative volume known as *Clinical Neurosurgery*.

Although the society grew rapidly and accomplished its broad goal in an admirable fashion, education activities beyond the annual meeting drew little attention until President George Tindall advocated the development of a continuing medical education program.

Several interactive forces led to the rapid implementation of a program for continuing medical education. These factors included the burgeoning explosion of medical information; the entrance of neurological surgery into the high technology era of computed scans, microsurgery, and complex diagnostic and technical procedures, and the sub rosa concern with the mounting confrontation between the medical profession and the public. The principal manifestation of this imagined loss of respect came in the form of increasing malpractice action. Educators, medical leaders, and the public generally agreed that the proliferation of knowledge and the massive expenditure of funds for research through the National Institutes of Health and targeted disease programs should have improved medical care to an all-time level of excellence. Expectations were high, yet failure still occurred. When failure occurred, lack of competence was frequently charged.

Medicine and surgery, already a profession highly motivated to maintain competency through continued study, took on yet another layer of administration to demonstrate public evidence of continued competence through the education process. The American Medical Association established a voluntary system called the Physician Recognition Award, which sponsored programs, ensured educational quality, and documented physician participation. Shortly thereafter, various state legislative bodies mandated documentation of continuing education for the renewal of a license to practice medicine. Several professional societies and voluntary boards for specialty certification instituted mandatory dates for recertification.

Fortunately, wise counsel from our leaders in neurological surgery advocated the continuation of voluntary efforts. The Joint Committee on Education of the Congress of Neurological Surgeons and the American Association of Neurological Surgeons (AANS) developed innovative programs in collaboration with the American College of Surgeons, the American Board of Neurological Surgery, the American Association of Neurological Professors, and the American Association of Medical Colleges but, most importantly, a productive relationship between the Congress and the AANS brought education to an all-time level of accomplishment. One of the milestones included the sequential development of a successful voluntary self-assessment program.

The recently released SANS II, an exciting and educational program, was developed entirely through the efforts of the Joint Committee on Education under the leadership of Doctors Ratcheson, Mahaley, and many other society members and with the collaboration of Mr. Carl Hauber and his staff. The enthusiastic acceptance of this program is evidence of its value as a voluntary educational model and the desire of our colleagues to assess their levels of knowledge. As a result of the diligence of many people, this program is not only a successful educational experience but is also financially solvent.

Several other activities of the Joint Education Committee deserve special attention. Publications, seminars, and practical courses have been developed for neurological surgeons and their colleagues in all other areas of medical practice. Continued interaction with allied health professionals has improved the ability of skilled personnel to provide exemplary care of the total patient. New activity in research, computer science, and public education indicates our desire to accommodate new technology and our commitment to inform the public of realistic expectations for new developments in neuroscience. These activities will enhance public knowledge of neurological disorders and acquaint society with the roles of medical science and of the public in combating neurological disorders such as trauma, stroke, tumors, congenital anomalies, and spinal diseases.

Personal confession is good for the spirit. Therefore, I shall admit that the major result of much of my personal educa-

tional effort is the confirmation that knowledge plays only a supportive role in the process of developing a superior physician. Mr. Norman Cousins stated it very clearly: "Knowledge without values can be found in almanacs; information without motivation can be obtained from computers." (3) Moreover, "the overriding issue before medicine today is not of proficiency but of humanity" (2). There are no infallible criteria short of living with a person to come to know his competence.

Consequently, the attraction of the *complete* medical student to education in neurological surgery has become a challenging responsibility. Abolition of the numerical concept of excellence in medical schools has introduced an element of realism and heightened the agony of evaluation by the medical faculty. Examinations are not a reasonable facsimile of knowing the student. An examination should be a fine learning experience—but how many are? Grades received in medical school may not correlate with a physician's performance. The relationship between memory and action is not direct, for correct action depends considerably on proper discipline. Surely, in selecting people the only true test is performance in work; the least reliable test is performance in school. These may correlate, but often they do not.

Most educators agree that medical education is not in an ideal state of health. For those seeking an M.D. degree, the race begins early, the course is arduous, and the prize, once achieved, may hardly seem worth the effort. Medical students grumble about increasing pressures, the torrents of material, and the lack of time to think, much less to relax. Patients complain about the current group of students who lack compassion and are more fascinated by tests and procedures than by the humans they treat. The faculty is concerned that students are narrow-minded, are unenthusiastic, and have little perspective on the facts that they have memorized.

There is little agreement concerning the treatment of the problem; however, most educators acknowledge that the trend toward early specialization and overemphasis on science as a preparation for medicine deserves reversal. Students blame the problem on admission criteria that emphasize grades and test scores over personal attributes and interests, which are a more important predictor of a competent physician. Is there not a place for solid performers who rank in the middle of the class?

Can students be taught humanistic behavior? Certainly; the best way is by teaching a student to structure his education and by providing faculty who will serve as a proper example of the compassionate, competent physician.

Medical schools must balance their primary goal of educating competent physicians against competing incentives, objectives, and influences. They must recognize that their social purpose is to educate *good* doctors as well as to care for patients and to conduct research. This goal can be met only by recognizing that self-discipline, discriminating judgment, responsibility, and accountability, based upon a foundation of medical science, are the attributes of the competent physician. These values can be learned only by students and residents who are given progressively increasing responsibility for patient care under the direction of a faculty who themselves are disciplined, responsible, accountable, and able to judge discriminately in caring for patients. There must be a resorting of the three functions of the medical school and a rededication to the primary purpose, namely, the preparation of good doctors with internal standards of performance. Only then will it be possible to ensure the proud position of medicine in our society.

In a recent address to the student section of the American Medical Association, Dr. Arnold Relman, editor of the *New England Journal of Medicine*, warned that there is a growing sense throughout the country that physicians are highly trained, highly technical businessmen. He cited advertising, recent Federal Trade Commission rulings, and physician involvement in corporate concerns. "Medicine can lose its special position as a learned profession if health care is regarded as a commodity to be dispensed like any other service." (5)

Lewis Thomas issued a similar admonition in his recent book, *The Youngest Science* (8):

> "In former times, talking was the biggest part of medicine for it was almost all there was to do. Today, the longest and more personal discussions concern finances and insurance and are held between patients and accounting personnel, where scientific instruments are computers. The hospitalized patient feels like a working part of an immense apparatus. He is admitted and discharged by computers, occasionally without learning the name of the doctor. But there is another difference worth emphasis, however. Many patients go home speedily, in good health, cured of their disease. In former days, this happened infrequently, and when it did it was usually a matter of good fortune or a strong constitution. Today, it is frequently due to high technology and superior science."

But is the cost too great—not just the money but also the loss of the unique, subtle, personal relationship that takes roots from the origins of medical history and needs preserving. To do it right has never been easy; it takes the best of doctors, the best of friends. Once lost, even for as short a time as a generation, it may never be recovered. If this tradition is lost, the real position of caring for sick patients may become quite different, and the physician may no longer find himself caring for patients but caring for machines.

Some have argued that high technology disciplines, such as neurosurgery, have little role in the education of the undergraduate student. They should be reminded that our lineage and destiny dedicate us to this task. Cushing wrote frequently of the one ligature that holds all physicians together. He exhorted common devotion to the patient's good above self-interest and emphasized the acquisition of clinical skills in contrast to research and personal gain (4).

Dr. Davidoff in 1957, Dr. Murphey in 1966, and the Joint Committee on Education in 1982 evaluated the role of neurosurgery in medical school curricula. Each of these reports found considerable variation within individual institutions, but each concluded that neurosurgery has inadequate involvement in education during the basic science years, and in most instances the only meaningful exposure occurred at the elective level during clinical years.

Efforts by the Undergraduate Education Committees and the Graduate Education Committees have reflected and demonstrated that early involvement in medical curriculum is essential; that we must seek opportunities to engage the interest of medical students; that we should encourage interest in a broad liberal arts education; that we are obliged to nurture the development of concern for human values, motivation, discipline, judgment, and responsibility among our students. Finally, we must acquire positions on the admissions, curriculum, and advisory committees of our medical schools to ensure that the values we endorse are integrated into the admission requirements, curriculum, and faculty demeanor. In summary, "example is not the best method of teaching," according to Albert Schweitzer, "it is the only method."

Evaluation of competent behavior implies the importance of integrity, which is taken from the Latin word integer, meaning *whole*. Physicians with integrity, or wholeness, should fill the gap commonly seen between knowledge and performance. A study by Sheehan et al. firmly documents that moral reasoning is a reliable predictor of clinical performance, whereas medical knowledge, grades, MCAT scores, and

a host of biographical and personality variables are poor predictors. Sheehan et al. concluded that moral behavior is a combination of moral reasoning plus such nonmoral factors as one's emotional makeup, ego strength, and willingness to act on a decision. Repeated correlation between moral reasoning and measurement of physician performance indicates that moral reasoning is a predictor and perhaps even a component of clinical performance (6).

Bosk, in his probing study of resident behavior entitled *Forgive and Remember*, characterized mistakes as blameless and blameworthy (1). Blameless errors were made through no fault of the resident and were attributed to lack of cognitive knowledge. Such errors were dealt with promptly and were not repeated. Blameworthy errors were either normative or quasinormative in nature. Normative errors violate universal rules of physician conduct or behavior, whereas quasinormative errors involve failure to follow a personal protocol and to respect the personal preferences of superiors. Blameworthy errors are not forgiven and, if repeated, are considered grounds for dismissal because these traits indicate a lack of integrity in honoring the commitments demanded by a career in surgery (1).

The making of a superior surgeon is based on matching the correct personality with an environment necessary to create an atmosphere that will germinate a concept of perpetual growth in knowledge and character.

In our concern for the surgeon's competence and character, we must not overlook the importance of operative skill. The acquisition of surgical skill is based on the assumption of two fundamentally different concepts: the intellectual process of making decisions and the manual process of dexterity. Decision-making probably accounts for most of the important events in a surgical procedure, whereas dexterity is involved to a less significant degree. However, these two fundamental actions are inseparably fused into the basic objectives of completing an operation quickly, skillfully, and with minimal technical error.

Decision-making correlates closely with clinical performance. It is a complex intellectual function with many components, the major ones being basic knowledge, capacity for observation of events, deductive reasoning, timely action, and empathy. Dexterity, by contrast, is an eye-hand-brain reflex that is one of the marvels of the human body.

Spencer (7) divides dexterity into four basic concepts:

1. Teaching is badly neglected, its importance minimized with cliches like "you can teach a monkey to operate" or "you will automatically learn."
2. A significant percentage of surgical complications are due to error in technique.
3. Residents vary widely in natural ability; often those with little dexterity are taught least.
4. Learning how to operate is a continuing process that never ends. Residency education should teach one how to be a good learner.

Pasteur said that, "in the field of observation, chance favors the prepared mind." The same can be said of the properly performed surgical procedure. Surgical decisions are based on planning, observation, and deduction. A careful plan may require alteration because of unexpected events; emotional considerations become important. Stressful decisions must be made in a calm, serious atmosphere devoid of confusion and undue tension.

Dealing with unwanted results is always a difficult task, but must be a regular part of educational programs. All untoward events encountered during the care of patients must be thoroughly recorded and discussed in detail. It has been said that good judgment comes from experience, and experience comes from bad judgment; however, repeating the same mistake is not acceptable experience. Herein lies the strong surgical disciplinary concept so clearly elucidated in *Forgive and Remember* (1).

I thank the members of the Congress of Neurological Surgeons for giving me the opportunity to grow with you in knowledge and, I hope, in a modicum of wisdom. I close with a favorite quotation from the late Sir Kenneth Clark, Archivist to The United Kingdom. At the end of his highly successful 1970 series entitled *Civilization*, he was asked to provide a brief summary of his beliefs.

> I believe that order is better than chaos, creation better than destruction. I prefer gentleness to violence, forgiveness to vendetta. On the whole, I think that knowledge is preferable to ignorance, and I am sure that human sympathy is more valuable than ideology. . . . I believe that in spite of the recent triumphs of science, men haven't changed much in the last 2,000 years and, in consequence, we must try to learn from history; history is *ourselves*. . . . I believe in courtesy, the ritual by which we avoid hurting other people's feelings by satisfying our own egos . . . and that we are a part of a great whole which for convenience we call nature. All living things are our brothers and sisters. Above all, I believe in the God-given genius of certain individuals and I value a society [like the Congress of Neurological Surgeons] which makes their existence possible.

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