As to quality, our best neurosurgeons are without equal: excellent clinicians, teachers, and investigators. But many more neurosurgeons are not driven to excel; they were not selected to excel, they were not trained to excel, and there is little coercion or pressure to invite them to excel. The ready acceptance of mediocrity in neurosurgery—by teachers and students alike—is the natural consequence of a residency system that barters service for education. For neurosurgery to excel, educators must first forego this easy exchange.

If the production of neurosurgeons were linked to society's needs—not to the service needs of the teaching institutions—the achievement of excellence in neurosurgery would be more certain and more uniform.

I found the editorial stimulating. I, of course, quarrel with the general acceptance of things as they are, and doubt that tightening up the existing educational system is strong enough medicine for our pressing problems.

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... THE PHILOSOPHICAL PROBLEM:

Thank you for your editorial invitation to comment on Dr. Bergland's article.

There is a natural tendency of successful and influential persons to favor the sort of teaching *they themselves* have had. And there is an even stronger tendency to favor candidates who are of the same background, personality or interests. And we all recognize the existence of pressures to fill positions regardless of available talent.

But in addition to these and similar practical problems, there is a knotty philosophical one: to what extent do high standards require standardization? Shall people be approved or accepted because even if lustreless they lack certain defects (a safer, bureaucratic approach)? Or shall they be favored because in spite of important defects they have certain kinds of excellence (a riskier, frontier approach)?

The over-all trend in our present society is toward ever greater homogenization and uniformity. Shall we realistically accept this and fit in? Or shall we idealistically contend against it and, if so, at what permissible cost?

There may be no complete answers to these questions. But there would be no answers at all, even partial, without your admirable encouragement of further dialogue.

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... WANTS REGIONAL CENTERS, SUB-SPECIALTIES:

I was delighted to see the comments about Dr. Bergland's New England Journal of Medicine article, "Neurosurgery May Die" in SURGICAL NEUROLOGY.

As an individual who has now had experience following residency in both academic practice of neurosurgery, private clinic practice of neurosurgery, and the independent practice of neurosurgery, I have seen the problems that are prominent among neurosurgeons. I left academic medicine because the volume of work was inadequate to satisfy me. The total amount of work available was inadequate for training residents.

At a very fine private clinic, I was able to build up to a fine surgical volume, but only with a remarkable work load in doing the neurological screening of a tremendous number of patients.

In general, neurosurgeons both at academic institutions and in private practice do a great amount of general neurological screening, and a similar volume of neuroradiological diagnostic procedures with a relatively small volume of neurosurgery.

Since my own subspecialization into an area of treating chronic pain, it is of note that in at least three major medical schools in this country, through the efforts of colleagues and friends of mine, the pain practice has been built up very quickly either to equal or exceed the volume of the entire rest of the neurosurgical program.

In Scandinavian countries and in England, the whole practice is entirely different, and I feel, to a large extent, superior. The average neurosurgeon in those countries does not see patients who do not need careful consideration of some type of surgical intervention. *That is neurosurgery.* If the practice of neurosurgery in this country were carried out along those lines, it would mean that we would need between 300 and 500 neurological surgeons; not the 2,500 who are now practicing.

I have unequivocally come to the conclusion that the practice of major neurosurgery should be restricted to regional centers. Almost invariably, such centers would be medical schools, but perhaps not all the medical schools would qualify. One of the main reasons is the quality of patient care. Trained physicians must be available 24 hours a day to handle the sudden catastrophes that can occur. Furthermore, the expense of setting up a really superb intensive care unit for neurological surgery which is necessary for optimal care is too great for most general hospitals with a low volume usage.

Of even greater concern is the neurosurgeon in large cities in private practice who spreads himself too thin. It is seldom possible to give adequate care at more than one hospital.

Each neurosurgeon should ask himself whom *he* would trust if he had to have an aneurysm operated upon. All aneurysms should be referred to highly specialized centers with a very competent neurosurgeon doing the procedure.

The time has come and passed when the Board of Neurological Surgery and all major neurosurgical groups, especially the American Association of Neurological Surgeons and the Congress of Neurological Surgeons, must take action which will bring about a