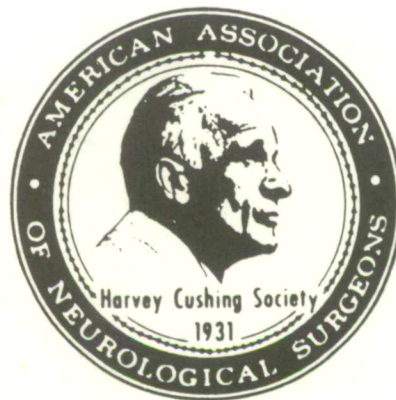


SUMMARY
NEUROSURGICAL MANPOWER MONITORING COMMITTEE
1976 REPORT



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INTRODUCTION

In fulfillment of a contract with NINDS (#72-2308), the American Association of Neurological Surgeons through a committee appointed for that purpose studied the national manpower needs for neurosurgical specialists over a period of some 20 months and after receiving the committee's report transmitted it to the National Institutes of Health. In this 1975 report there was described much data which the committee had gathered - mainly by questionnaires - together with analyses and projections having to do with the number of neurosurgeons in the United States, their pattern of distribution and certain details about neurological surgery as currently practiced. Insights into the recruitment and training of would be specialists in this field as well as academic, clinical and other interests of neurosurgeons were obtained. Information relative to factors influencing neurological surgeons' choice of a location for practice was developed. From these data it was thought possible to make certain tentative assumptions for future manpower needs for neurosurgical care.

At the time of receipt of transmission of the 1975 report of the neurosurgical Manpower Commission the membership of the AANS expressed considerable concern relative to the implications of this report and urged a wider discussion of the problem with an effort to provide every neurosurgeon in the U.S. the opportunity to be heard. Following the annual 1975 meeting, the Executive Committee of the AANS established the Manpower Monitoring Committee consisting of two neurosurgeons, one academician and one from the practice segment, from each of the nine federal census regions in the United States. The original Manpower Committee, expanded to four men, was reappointed to serve as an Executive Committee for the group resulting in the current 22-man Manpower Monitoring Committee. This committee was charged with gathering more information of regional importance, assessing the effect and impact of the 1975 report and submitting a revised and extended analysis to the 1976 Meeting of the AANS. The committee was further instructed to present the issues raised by the 1975 report at every level of organized neurosurgery including

state, regional and national meetings and to assure the widest possible participation of all neurosurgeons in the issues under discussion.

PROCEDURE

The M.M.C. has met as a full committee on three occasions. The regional representatives have met together on multiple occasions in their joint effort directed towards developing their regional subreports. The manpower issue was presented for discussion at many State Neurosurgical Society meetings as well as at the Annual Meeting of the Society of Neurological Surgeons and the Academy of Neurosurgery*. At a well organized and heavily attended meeting prior to the annual session of the Congress of Neurological Surgery, an "open hearing" session was held under the sponsorship of the Joint Socioeconomic Committee.

The national questionnaire which served as a basis for the 1975 Manpower Report contained over 40 questions, some of which were available for computer analysis on a regional basis. This information has been used as a partial basis for the report to the 1976 AANS Meeting. In addition, a supplementary questionnaire was developed for regional distribution which not only contained the residual questions from the original document which could not be analyzed on a regional basis but also many additional questions which the committee felt would be of further importance. The latter questionnaire was distributed to every neurosurgeon who could be identified by whatever means in each region. An important spin-off of this effort was the identification of a number of men who had not appeared on prior official or unofficial listings. In addition to the collation of the data from each region, the regional representatives have written a separate report pertaining to the individual needs, characteristics and opinions of the neurosurgeons in the regions which they represent, these regional reports serving as the basis for this Manpower Monitoring Committee Summary. In addition, two regions, VIII and IX, prepared their own questionnaires. In Region VIII this information serves as the basis for the conclusions from that region and in Region IX the information supplements that from the original and supplementary questionnaires.

The problem of the number of neurosurgeons, defined most broadly as one rendering some type of neurosurgical care, has plagued the committee. The regional representatives have begun to develop contacts throughout their own areas. An ongoing file of this updated information gathered through collaboration with the state societies will be essential for the continued work of this committee and valuable for other neurosurgical

*American Academy of Neurological Surgeons

groups attending to the future socio-economic and educational needs of our specialty.

DATA ANALYSIS

1. Characteristics of Responders:

As a national average, the response rate to the supplementary regional questionnaires was approximately 50%, varying from a low of 40 to a high of 55 with a much higher (90+%) return rate to the special regional questionnaires distributed in Regions VIII and IX. The ABNS certification status of the men responding to these series of questionnaires averaged 85% on a national basis with very little variation from region to region. Concerning the length of time in practice, approximately 55% of the responders had practiced under ten years with the highest percentage, 65% coming from Region VII. On a national average, one quarter of the men moved their location of practice at least once, not including their period of residency training with the national low being one out of six in Region V to a national high of one out of three in Region IX. Information was not available, however, as to whether this move was within the same region or from one region to another.

Comment:

It seems safe to conclude that whereas neurosurgery overall is a young specialty, the responders to this questionnaire and, therefore, those providing the data base represented the younger men in neurosurgery itself and that they represented as well a higher percentage of Board certified neurosurgeons than the total of Board certified neurosurgeons relative to the total neurosurgical manpower in the United States. It should be emphasized that the data herein reported is to some extent a compilation of information from the two questionnaires. The committee is aware of the fact that whereas there was undoubtedly a large overlap, the responders to these two documents are certainly not identical and has taken every precaution against drawing unjustified conclusions from this data base.

2. Factors in Choice of Region:

In all nine regions professional associations (60%) and academic opportunities (40%) constituted the major factors for the choice of practice location. These figures, however, not mutually exclusive. Cultural and financial opportunities

were of moderate importance, whereas family ties and recreational opportunities seemed to carry little overall weight in the decision as to the site of practice. Climate assumed only moderate importance in Regions VIII and IX.

Comment:

In view of the length and rigors of neurosurgical training it is not surprising that serious professional factors are the major issues in relationship to the choice of location for establishment of a neurosurgical practice. As documented in several of the regional reports (VII and VIII) a potential local shortage of neurosurgeons will result in these areas in the not too distant future. Opportunities will exist based on their increasing populations, plans for retirement of the practicing neurosurgeons based on age and socio-economic pressures as well as on the changing life styles of succeeding generations.

3. Type of Practice:

Concerning the types and patterns of neurosurgical practice, solo practice varied from 22% to 40%, the highest being in the western regions and the lowest in New England. The national average for solo practice of neurosurgery was approximately 30%. Some type of group practice represented 45% of the national average and was not significantly different among the various regions. The practice of neurosurgery in the teaching medical school environment represented approximately 20% of the national total, reaching a high of 33% in the region constituting the mid-Atlantic area and a low of 13% in Region VII. The national figures seem to reflect a regional concentration of medical schools and teaching centers.

Comment:

When an opinion was requested relative to the type of practice pattern which would deliver the optimum neurosurgical care in the future, only approximately 5% on the national average indicated that solo practice would, in their opinion, fulfill this goal. The very great majority favored groups and mostly groups of three or more. Interesting, is the fact that a significant number indicated an attraction to practice as a member of a multidisciplinary group.

Additional detail will be important relative to the specifics of this information. Here, how many respondents were referring to groups of interdisciplinary neurological specialists, for example, as compared to the broader based truly multidisciplinary groups. This expression of interest, however, was reflected in a frequently appearing comment relating to the need for better understanding between various specialists, to be amplified later in this summary.

4. Number of Hospitals Used:

Concerning the number of hospitals in which neurosurgeons practiced, the national average was 20% practicing in only one hospital and 27% in two hospitals with the remaining 53% practicing in three or more. Where the information was available, it would appear that on an average, 75% of time was spent in what was considered the surgeon's primary hospital with, however, wide regional variations from 50 to 90% being evident. The highest percentage of men practicing in one or two hospitals was that of 70% in Region I and the lowest, 45% in Region VIII.

Comment:

When questioned concerning their desires relative to factors which might improve the quality of care delivered, there was almost a universal expression of desire to concentrate "all of their patients in one hospital". The committee has already gained the impression from their regional activities that many men who "work" in multiple hospitals actually spend a high percentage of their time in one. The question to be answered is what does "concentrate in one hospital" truly imply for the delivery of neurosurgical care to the community? To what extent does this response mean each neurosurgeon or group concentrating in their own hospital and to what extent does it imply an interest in the establishment of a community based "center" for several men or groups. Adequate consultative services and rapid transport systems are factors which must be considered on a regional and indeed, local basis during the process of clarification of this issue.

5. Workload:

Figures concerning the average work week were difficult to obtain as there were wide variations within all regions. However, on a national average it would appear that 60 hours per week comes really close to representing a valid figure. The average daily hospital census was roughly in the neighborhood of 20 patients, but here again, there was considerable variation from region to region and a great deal of variation within each region. Concerning the number of operations per year, the national average appears to be somewhat over 150 procedures but once again, within each region there are extreme variations so that average figures may not represent the average workload of United States neurosurgeons.

Information concerning the number of patients coming under the care of a neurosurgeon on an annual basis but not requiring direct surgical therapy is even more difficult to assess, but it would appear that it varies between 150 and 300 per year in the six regions where some information was available to this point.

*SUMMARY OF NATIONAL SURGICAL STATISTICS
(No Significant Regional Differences)

	<u>% of Responders</u>	<u>No. per Year</u>
Brain Tumor	30%	up to 10
	75%	up to 25
Craniotomy, Vascular	35%	up to 5
	75%	up to 10
Craniotomy, Trauma	30%	up to 5
	70%	up to 25
Disc, Lumbar	25%	up to 25
	55%	up to 50
Disc, Cervical	25%	up to 10
	40%	up to 25
Peripheral Nerve	45%	up to 5
	80%	up to 10
Surgery for Pain	50%	up to 5
	80%	up to 10

*Does not apply to total case load

Comment:

When questioned concerning their plans for operative case loads during the coming year as compared to the prior, 90% of neurosurgeons indicated they planned the same or increased case loads and of the 10% who projected a decrease, half of these had planned to voluntarily restrict their activity. As indicated above, information was also obtained relative to the percentage of time spent in various activities which varied from region to region. Approximately 30 to 50% of time, however, was spent on inpatient services carrying out operative and postoperative care and approximately 20% on inpatient, nonoperative and neurological care. Approximately 15% of the time was spent in ambulatory care provided in the private office setting and the remainder of the time spent providing ambulatory care in clinics and hospitals and teaching as well as on various

committees, including hospital and administrative activity and in local and national neurosurgical society work. Whether neurosurgeons of the future can be expected to continue to work a 60 hour week is an issue which demands further clarification in consideration of the manpower problem.

As a result of this study, it would appear, however, that more accurate and detailed information concerning the services delivered by neurosurgeons on a regional and national basis would be important to obtain in order to monitor the effects of the size of the manpower pool on the delivery of neurosurgical services to the population of the United States. This might best be done by means of a logkeeping study and whereas not all neurosurgeons indicated their willingness to cooperate, a significant number indicated their willingness to participate in such a data collecting effort.

6. Opinion Regarding Number of Neurological Physicians:

When questioned concerning their opinion as to the number of neurologists, neuroradiologists and neurosurgeons, the national average indicated that 35% felt there were too few neurologists, 50% felt there were the right number and 15% felt there were too many. The greatest need for neurologists in the opinion of neurosurgeons appeared to be expressed in Regions IV and V and the lowest in Region VIII. The national opinion concerning neuroradiologists indicated that 50% felt there were too few and another 45% felt there were enough, whereas only 5% felt there were too many and there was little significant regional difference in these opinions. Concerning the number of neurosurgeons as expressed by those answering the questionnaire, only 5% felt there were too few neurosurgeons, 50% felt there were enough and another 45% indicated there were too many as of this time. The highest percentage in any region indicating a need for additional neurosurgeons was seen in Region V where 20% suggested that there were too few as of this moment.

Comment:

When questioned concerning the use of consultants, the highest incidence occurred with neuroradiologists followed by other neurosurgeons and neurologists. Neuropathologists seemed to be consulted fairly frequently and psychiatrists the least often.

7. Relationship to Other Specialties:

When questioned concerning the need for additional

manpower in their regions relative to psychiatrists, orthopedists, vascular surgeons, otolaryngologists and "all physicians", almost universally the neurosurgeons responding to this questionnaire seemed to feel that the number of other physicians was about right with a larger percentage expressing a need for additional physicians in the southwestern regions of the United States as might be expected with the growing population density in these areas. A number of questions were asked concerning shared responsibility for patients and additional questions directed towards those disease entities which are shared with other specialties. Responsibility is shared with neurology and orthopedics quite commonly for several disease entities with rehabilitation medicine being included particularly in spinal cord trauma. Other specialties, such as vascular, general surgery and otolaryngology share responsibility in varying degrees from region to region and with considerable strictly local differences. Many unsettled questions remain to be answered concerning substitution and collaboration among specialties and the qualifications of the individual physicians within these specialties to provide optimum patient care. The relationship of neurosurgery to other specialties requires further study as well as the aspect of sub-specialization within neurosurgery itself if valid regional and national data is to be made available to our societies.

Comment:

There was an almost universal expression of opinion indicating a desire for an improved level of understanding on the part of physicians as to the role of neurosurgery. An avoidance of unnecessary referrals on the one hand, and an earlier consultation in appropriate conditions on the other hand, would result in a more economic use of neurosurgeons' skills and the public's health care dollar. Improved relationships with other medical specialties would further these goals.

8. Limitation of Practice:

On a national basis by far the most important reason for limitation of neurosurgical practice constituted those procedures which were infrequently carried out by the individual neurosurgeons. Lack of facilities and anxiety concerning malpractice only infrequently constituted reasons for the limitations of a neurosurgeon's activity. Concerning the malpractice issue itself through an unfortunate error in questionnaire design, no information could be obtained as to the number of neurosurgeons who have no malpractice actions pending. On a

national basis, however, it is clear that 20% of neurosurgeons have three or more malpractice actions pending against them. A significant percentage of neurosurgeons, moreover, are involved in medical legal activities on a local, state and national level as well as providing expert testimony in court. A significant number are involved in providing aid to defense counsels and fewer, but still not an insignificant number, are providing aid to plaintiff counsels. As might be expected, there are wide regional differences in the total involvement in medical-legal activities, hence, national averages serve only to re-emphasize the importance of this problem as it relates to the cost and quality of patient care.

9. Achieving Improved Quality of Care:

Here, there was almost a unanimity of opinion in all regions that the measures necessary for the improvement of neurosurgical care would best be achieved by organized neurosurgery at the local, state and national level and in association with other medical specialties. A few were interested in collaborating with nongovernmental agencies such as Blue Cross and the American Hospital Association. A few felt that the American College of Surgeons or the American Medical Association would be of assistance in this issue and even a smaller percentage considered either state or federal agencies to be of value. A number seemed sufficiently discouraged to indicate that none of these factors would be of assistance in achieving these goals.

SUMMARY

The Manpower Monitoring Committee attempted during the past year to gain the widest possible participation of all neurosurgeons concerning the manpower needs of our specialty at the present time and for the future. A good deal of solid information has been gathered and a great deal more which requires additional validation in order to be as certain as possible of its accuracy. The question is often asked, "Manpower needs for what?". If the neurosurgeons are to see every head injury, the numbers required will be quite different than if these patients are triaged through other medical specialties and only the serious problems referred for neurosurgical care. If neurosurgeons are to continue to provide a significant amount of primary neurological care the needs will be quite different than if neurology itself increases its manpower pool. There will always remain regional differences in the patterns of practice so that national figures to be valid will always require regional modifiers. One aspect of our work during the past year

highlights the fact that a great deal more work will be required to document the actual workload of neurosurgeons throughout the United States in order to arrive at a better definition of the responsibilities of our field as it currently is practiced. The Division of Research and Medical Education at the University of Southern California has been funded both by the Bureau of Health Manpower and by the Robert Wood Johnson Foundation to develop a diary technique for the sampling of workloads of physicians in all medical specialties. The possibility exists of collaborating with this group to develop a neurosurgical diary which would serve as a representative sample of our activities in as scientific a fashion as possible. This tool should serve not only to document the activities of our specialty at this time but also to provide us with the opportunity to continue to monitor the changes in neurosurgical activities as the manpower pool is manipulated by forces both within neurosurgery and from without.

As indicated throughout this summary of the M.M.C. report, a number of other issues were felt to be of sufficient importance by the entire committee to warrant further study. These include, for example, the further definition and implications for the health care delivery system of concentration of patients in one hospital.

Other issues are of parallel importance and need further validation. These include the effect of the changing life styles in the U.S.A. on neurosurgical manpower. Can we expect future generations of neurosurgeons to work a 60 hour week? What are the specific ages of neurosurgeons in the various regions and plans for retirement? What effect does the continuing malpractice issue have on the manpower pool? Several of the regional committees (VII and VIII) have incidentally already obtained considerable information on these subjects. Region IX developed a special questionnaire for the program directors in their area. The committee recommended that this study be extended to the other regions in the U.S. Working in conjunction with the State neurosurgical societies in their regions, the committee recommended a continuing of our efforts to identify all individuals who are delivering neurosurgical care at any level.

The Manpower Monitoring Committee sees its role as developer of a data base for neurosurgery, a base which will be the property of neurosurgery to be used by our specialty in its self defense as well as in its projections for future growth. Information is a powerful tool, however, it presents a two edged sword the application of which must be well considered in advance of possible action. Significant changes in social attitudes, most of which are presently in the direction

of downgrading medicine, cast doubt on the probability of beneficially influencing these developments by seeking rational solutions to medical specialty problems at social or political levels. We must be concerned about the possibility of painting ourselves into a corner. To quote one of the members of our Manpower Committee, "It is recognized that when you study yourself you are risking putting your head in a noose". In the situation in which we find ourselves, where outside controls are seriously threatened based primarily on incomplete information, it would appear that this risk is worth the taking in order to assure the well being of neurological surgery in the United States in the decades ahead.

Respectfully submitted,

Manpower Monitoring Committee
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 VIII John Green, M.D.
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 IX George Ojemann, M.D.
 Edward Reifel, M.D.

Region I (Maine, Vermont, New Hampshire,
 Massachusetts, Connecticut)

Region II (New York, New Jersey,
 Pennsylvania)

Region III (West Virginia, Virginia,
 North Carolina, South
 Carolina, Georgia, Florida,
 Maryland)

- Region IV (Wisconsin, Michigan, Illinois,
Indiana, Ohio)
- Region V (Kentucky, Tennessee,
Mississippi, Alabama)
- Region VI (North Dakota, South Dakota,
Minnesota, Iowa, Nebraska,
Kansas, Missouri)
- Region VII (Oklahoma, Arkansas, Texas,
Louisiana)
- Region VIII (Montana, Idaho, Wyoming,
Nevada, Utah, Colorado,
Arizona, New Mexico)
- Region IX (Washington, California,
Oregon, Hawaii)

JR:er