

Essential Knowledge for the Neurosurgeon: The German Perspective

Hans-Peter Richter, M.D., Ph.D.

Mr. President, Dear Colleagues and Friends, Ladies and Gentlemen,

It is a real pleasure¹ to participate in this year's Congress Meeting. On behalf of the German Society of Neurosurgery as well as the German Academy of Neurosurgery, I express our sincere gratitude for having invited us to this Joint Meeting to Chicago. This also reflects the strong personal ties and friendships between many American and German neurosurgeons. Our host city, the city of Chicago, has a special meaning for us. It has been one of the most important places for German immigrants in the past; even for members of my family, who settled down in Chicago during the 19th and early 20th century. Again, it is a great pleasure to be here.

Despite the different social systems, even though the principles of reimbursement differ between our countries, we have many essential fields of interest, questions, and ideas in common, both for the present and the future.

You just discussed the knowledge that is essential for neurosurgeons. This discussion was lead on a very high level. If you look at it from the global perspective—is this knowledge a worldwide standard, or can it ever be?

The countries that can afford our level of neurosurgery and the populations that have access to this level of care are a minority. There is no equality, no equal access to this advanced and specialized health care. There is no such thing as “One Health for the World.” In other words, there are two types of populations. Those who have access to modern neurosurgery, and those who do not.

The dilemma, however, is the same, irrespective of the economic strength or wealth of the countries, namely the gap between the doable and the payable. And the methods to cope with this dilemma are limited.

Does this fact have an impact on the level of knowledge and skills of the neurosurgeon? Does a neurosurgeon working in an Asian country such as Nepal, in a West African Sub-Saharan country, in Germany or the United States have to fulfill identical requirements? Should we train and educate

the “universal” neurosurgeon—who is able to work in Germany as well as in Nepal?

Imagine a country without a neurosurgeon and even without a computed tomographic (CT) scanner. A country living more or less on a subsistence level in which the majority of the population is not covered by health insurance at all.

This country sets up a CT scanner, because this has been a project of foreign aid as well as the wish of the country and a question of prestige for the local politicians. Once the scanner is functioning, the health authorities recognize that they need somebody who takes care of the pathologies detected on a CT scan. They look for a neurosurgeon, because it is politically as well as economically unacceptable to send all of these patients to Europe or the United States or to leave them without treatment.

One day the neurosurgeon appears. He has been trained in Europe. He has no surgical microscope. He only has the set of basic instruments to his disposition that he had bought from the World Federation (WFNS). Here comes a patient, a lady, blind for several months. Her CT shows a giant frontobasal meningioma. The neurosurgeon had possibly been trained for this pathology. What would you advise him to do?

Should he operate on her? Because a small chance of improvement is better than no chance?

Should he send her home, because the treatment of this tumor would be both difficult and expensive?

Should he send the patient to Europe for surgery? For the price of this one patient with a frontobasal meningioma, thousands of children with malaria could be treated. Can you economically justify sending her to Europe or to the United States? But that happened. She was sent to Europe.

By the way, she belonged to a rather wealthy family. If she had belonged to a poor family, nobody would have cared for her. This is two-class medicine.

The requirements for a neurosurgeon working in such a country differ widely from the requirements for a neurosurgeon in our highly industrialized countries. You all will understand that such a neurosurgeon will probably be unable to be transferred to our high-tech units in North America or Europe. But I am also convinced that only a few of us will be

able to do reasonable work in the described environment. I am speaking not of a 2-week humanitarian mission. I am speaking of a longer, a sustained stay. Practicing neurosurgery under the previously mentioned conditions is not just a question of a lack of technical equipment and the need for improvisation, of missing the familiar team in the operating room (OR), etc. It is also a question of how we are able to adapt to a culture that differs completely from ours. Not to forget the maybe entirely different opinion regarding the value of the individual. The attempt to export our principles and convictions to that culture will not be successful, and maybe we will fail. We all agree that such an environment does not need a neurosurgical subspecialist, it needs a generalist.

How about our countries? In most of the industrial countries of the world, there may be two classes of hospitals, the academic medical centers and the nonacademic centers. Of the 136 neurosurgical units in Germany, only 36 are academic institutions. The majority of them belong to community hospitals. These units have to take care of all kinds of neurosurgical diseases. For the position of a chief of neurosurgery, such a hospital will always hire a generalist. A subspecialist who only operated on spines during the past years is not eligible for such a position. This hospital can neither afford five subspecialists to cover the entire field of neurosurgery, nor just a spine or a tumor surgeon. A department that reduces neurosurgery just to one segment, such as tumor, vascular, or spine will certainly not survive.

In Europe, only big academic settings—but by no means all of them—can afford a true subspecialty structure.

Subspecialization has its pros and cons. It allows the increase of knowledge, the fostering of technical innovation, and the gaining of particular expertise. Maybe it leads to new therapeutic horizons for ill people.

On the other hand, increased therapeutic offers create increasing demands. Frequently, new and promising methods or implants appear on the market before their efficacy has been proven. Look at the so-called minimally invasive surgery, which is so much appreciated by the public—including many medical professionals. “Minimally invasive” is a marketing term. It generates the illusion of “almost no surgery” and no risks. In my country, it fits in very well with the fear of the technical medicine that we represent. Or look at the market for spinal fusion, which was estimated to be two billion dollars in 2002, rising annually by 18 to 20%. Although the neurosurgical generalist must be informed regarding the techniques, their indications, their results and risks, regarding their advantages and their disadvantages, he might not practice them. But then, he may be caught in a trap, if he does not offer these operations, he may lose patients to his competitors inside and outside of our specialty. This is the result of what Lobo Antunes, then President of the European Association of Neurosurgical Societies, called the “clash of traditional medical culture with business culture” and—in

parentheses “with an increasing number of entrepreneurs among our professionals” (2003, Acta NC).

It is easily understandable that this scenario particularly concerns diseases or clinical problems that are extremely frequent, such as low back pain or carpal tunnel syndrome. Increased competition and increased subspecialization comprises the danger of widening the indications for surgery and of increasing the societal costs beyond any limit. On the other hand, we have given up neurosurgical fields voluntarily, such as peripheral nerve. We realize now how difficult it is to gain them back.

Seeing the rapidity of increase in knowledge and technology, I am convinced that we will steer to a point at which we will be unable to keep pace with this progress. At that moment, those who have not yet asked this question will ask it: are these gadgets or techniques really necessary? What is truly essential? Today already, strictly limiting the number of board certified neurosurgeons to a rather modest level and excluding neurosurgeons from private practice may, for example, curtail the indications for surgery and, thereby, keep costs controllable. France and the Netherlands are examples for this approach.

I am looking back on my personal professional life of 32 years in neurosurgery. I know Europe best, but I have also worked in poor countries. Most places in this world need a neurosurgeon-generalist. The necessary professional expertise of this neurosurgeon-generalist depends on the economic strength of his country and its standard of medical care. There are countries in which the structure allows subspecialists. These will push knowledge and technology forward.

In most—if not in all—industrial countries, neurosurgeons must fulfill basic requirements, including the essential knowledge and skills. These are laid down by the national boards. They may be harmonized among the highly industrialized countries. Within the European Union, we are working on such a harmonization. However, these requirements for neurosurgeons cannot be universal, they cannot be valid for every country on this globe. They rather should be adapted to the needs of the country. Do you think that it is best to train all neurosurgical residents of the world in our highly technical units, with the specific plethora of neurosurgical diseases of our areas? Should that be the world-wide standard?

I do not think so. Looking at lower-income countries, I am convinced that it is best to train young neurosurgeons in their specific environment with its diseases, its equipment, its social system, its possibilities, and its limits. As far as the level of health care is concerned as well as the neurosurgical care, there are not just two extremes, the world atlas of neurosurgery is very colorful.

There are neither “universal” requirements for neurosurgeons, nor does the “universal neurosurgeon” himself or herself exist, not right now and not in the foreseeable future.