

Neurosurgical workforce in Germany

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Although the world is experiencing a deficit in the neurosurgical [workforce](#), the number of [neurosurgeons](#) in [Germany](#) has increased within the last two decades.

The aim of the study of Ringel et al. was to assess the neurosurgical [workforce](#) in Germany, compare it to [European](#) countries, and assess structures in neurosurgical [departments](#) in Germany.

Data regarding the number of neurosurgeons in Germany as well as the number of departments, beds, cases, and neurosurgical procedures were gathered. A [survey](#) among German neurosurgical departments was performed to assess the structure of [neurosurgical care](#). Furthermore, another survey among European countries was performed to acquire information regarding the number of surgeons and the regulation of training.

From 2000 to 2019, the number of board-certified neurosurgeons in Germany increased by 151% from 973 to 2,446. During the same period, the German population increased by only 1% from 82.26 million to 83.17 million. Thus, the number of [neurosurgeons](#) per 100,000 inhabitants increased from 1.18 to 2.94. The increase of neurosurgeons is not paralleled by an increase in departments or an increase in neurosurgical procedures within the active neurosurgical departments. In comparison to the participating European countries, where the number of neurosurgeons per 100,000 inhabitants ranged from 0.45 to 2.94, with Germany shows the highest number.

German institutions of medical administration urgently need to consider [regulation](#) of neurosurgical specialist [training](#) to prevent a further uncontrolled increase in neurosurgeons in a manner that is not adapted to the needs of neurosurgical care for the German population. Actions might include a regulation of entry to the [training](#) and of the number of training sites. Furthermore, an integration of non-physician assistant health care professionals and delegation of non-surgical [workload](#) from neurosurgeons is necessary. A further increase in neurosurgeons would be associated with a decrease in the surgical caseload per surgeons during training and after board [certification](#), which might compromise the [quality](#) of neurosurgical care ¹⁾.

With approximately 800 neurosurgeons and a population of 82 million, Germany has approximately 1

neurosurgeon per 102,500 people. In most areas there is ample neurosurgical coverage, but in the east and in rural areas there are open staff positions. Approximately two thirds of the neurosurgical recruitment advertisements published in medical journals are for staff positions in these areas. If all of these vacancies were filled, it is likely that patients who need neurosurgery would get their operations sooner—within a week to 10 days—and emergency call schedules would be eased for neurosurgeons already working in those areas.

Neurosurgery remains an attractive specialty in Germany, but there are two concerns that may impede its appeal in the near future. The administrative burden for a neurosurgeon is onerous: Perhaps 50 percent of a neurosurgeon's time is spent on administrative responsibilities such as coding and other tasks not involving patient care. Of perhaps greater concern is the limited pay. An international ranking of physicians' pay published in *Der Spiegel* magazine in 2006 showed German doctors at the bottom, below their colleagues in other European countries as well as those in the U.S. and Australia. Physician pay in Germany increased by 10 percent after physician strikes in 2006, but the dissatisfaction with pay remains, as was evidenced in September by protests for higher physician pay and increased hospital funding. Neurosurgery is a hospital-based specialty, and most neurosurgeons are salaried employees of hospitals. Neurosurgeons, like most physicians, see private patients to supplement their income.

These concerns are likely to negatively influence the recruitment to neurosurgical training programs in the future. This problem is compounded by the fact that approximately 70 percent of medical students are women, to whom other specialties have appealed more than neurosurgery. Roughly one third of all neurosurgeons in Germany, including those already certified and those in training, are women.

The neurosurgical training program lasts six years, and trainees work 40 to 48 hours or 50 to 66 hours per week, depending on state and local hospital arrangement. Providing adequate training within the prescribed time frame remains a challenge.

Despite these challenges, neurosurgeons are able to practice in an environment that is relatively free of medical liability concerns. Medical liability insurance premiums are lower than in the U.S. When a mistake clearly has been made, such as with wrong level surgery, there is immediate conversation with patient and the patient is reimbursed. When there is an unresolved dispute, the patient and lawyer bring the case to unbiased referees. Generally, there is compensation if a mistake has been made, but the success rate for these cases is very low. Most patients have a realistic expectation for neurosurgery, and the majority of claims hinge on poor physician communication during the consent process.

There is much to recommend the German healthcare system, and the population, including patients and physicians, is generally satisfied with the overall quality of the system. However, the system only works well when costs are contained. In addition to the previously mentioned demand for physician payment that is commensurate with the level of services delivered, advancing technologies and new drug therapies threaten to greatly increase the healthcare budget.

For neurosurgery in Germany, the greatest challenges involve training neurosurgeons while complying with the work hours limitations, and adapting to increasing subspecialization. The transition from generalized neurosurgery to subspecialization in spinal surgery—which on its way to becoming its own specialty—neurooncology, peripheral nerve, vascular, and functional neurosurgery requires certification, among other adjustments, but it often is difficult for neurosurgeons in a particular setting to obtain the number of hours required for certification in one of these areas.

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