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NEUROLOGY RESIDENCY TRAINING IN PAKISTAN: CURRENT STATUS AND FUTURE

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DEMOGRAPHICS

Pakistan is a developing country with an estimated population of 252.50 million with 51.48 percent males and 48.51 percent females. Urban population constitutes 34.1 percent of the total population while a major chunk of around 65.9 percent resides in rural areas.¹ There is a projected increase to 50% by 2050. There are around 18–22 institutions approved for neurology (including related subspecialties) training in Pakistan, with approximately 230 total registered residents currently training under CPSP guidelines. Official postgraduate neurology training programmes (CPSP-accredited FCPS or MD) are exclusively located in major urban tertiary teaching hospitals across Pakistan — typically in large cities such as Karachi, Lahore, Islamabad, Rawalpindi, Peshawar, Quetta and similar metropolitan centers. This is consistent with CPSP accreditation and neurology residency placement patterns

With a greater percentage of inhabitants in rural areas the healthcare burden faced by these individuals needs to be addressed. Lack of infrastructure and inadequate funding puts these individuals at verge of health related issues.

NEUROLOGICAL DISEASE BURDEN

Neurological disorders are the leading cause of disability and the second leading cause of death worldwide. This rise in absolute numbers of people affected suggests that advances in prevention and management of major neurological disorders are not sufficiently effective to counter global demographic changes.²

Neurological disorders, the most common of which are cerebrovascular, neurodegenerative, autoimmune, and spinal cord diseases, intracranial tumors, and craniocerebral trauma, cause significant damage to cognitive functioning, resulting in one of the highest rates of morbidity, disability, and mortality globally.^{3–8} The current global increase in the incidence of these neurological disorders may be related to population growth, population ageing, increased life expectancy, and increased exposure to associated risk factors.⁹ Globally, the three leading neurological causes of

deaths are stroke (67.4%), Alzheimer's disease and other dementias (20.3%), and meningitis (3.7%).² Overall, neurological conditions cause more disability and health loss in men compared to women, but there are some conditions like migraine or dementia where women are disproportionately affected. In children younger than five years, infectious neurological conditions (i.e., tetanus, meningitis, and encephalitis), particularly meningitis, are the main causes of neurological disability-adjusted life years (DALYs) in both sexes.³

CIRCUMSTANCES IN PAKISTAN

Mental health and neurological disorders are prevalent in Pakistan. However, there are considerable concerns with their management due to issues of access, availability of trained personnel and stigma alongside paucity of such data.¹⁰ The contribution of environmental factors to neurological disorders is in many cases modifiable.^{11,12}

The idea behind neurology training in Pakistan is to improve healthcare system from primary to tertiary care levels and to augment neurology training centers in Government and Private sector hospitals. Large number of medical graduates move abroad because of less number of training slots, low academic recognition, hectic duty hours and low salaries. Because of higher failure rates and increased competition, residents mental wellbeing is affected which is usually a cause of burnout. The motive is to develop a better healthcare system in collaboration with government officials through proper funding and establishment of standard residency program. In the past few years number of neurology training recognized institutes has increased and the objective is to flourish neurology field and improve teaching methods.

RESIDENCY PROGRAMS IN PAKISTAN

In Pakistan three predominant neurology training programs currently exist i.e. FCPS, MD and DCN. FCPS Neurology is a CPSP recognized training program while MD and DCN are recognized by medical universities.

All over Pakistan, 42 hospitals are currently conducting FCPS Neurology training program. It has also

been recognized by six hospitals in Saudi Arabia, five in United Kingdom and one in Nepal. Karachi, being the country's most linguistically, ethnically, and religiously diverse city offers FCPS training in Neurology in eight CPSP recognized institutes including Aga Khan University Hospital (AKUH), Liaquat National Hospital, Ziauddin Medical University and Hospital, Jinnah Postgraduate Medical Center (JPMC), Civil Hospital Karachi, Dow International Medical College, Abbasi Shaheed Hospital, and Pakistan Navy Station (PNS) Shifa Hospital. A total of 287 candidates have been trained from these CPSP recognized institutes in Karachi.

Paediatric Neurology training program is being offered at four institutes in Pakistan including AKUH, Children's Hospital and Institute of Child Health (CHICH) Lahore, CHICH Multan and University of Child Health Sciences (UCHS) Lahore. A total of 29 CPSP recognized supervisors conduct FCPS Neurology Paediatric training program in different institutes throughout the country, with eight supervisors in AKUH Karachi, eight in CHICH Lahore, five in CHICH Multan, and eight in UCHS Lahore.

MD Neurology training program is being conducted at some institutions in Sindh and Punjab, however, exact data about number of institutes and trainees is lacking. The program is not offered in Baluchistan and KPK. DCN program is offered at two institutes in Sindh including JPMC and CMC. Neurology residency programs in Khyber Pakhtunkhwa (KP), Pakistan, are primarily offered by major teaching hospitals and medical institutions in Peshawar, including Hayatabad Medical Complex (HMC), Lady Reading Hospital (LRH), and Khyber Teaching Hospital (KTH).

Training facilities in Baluchistan are primarily concentrated in the provincial capital, Quetta including Bolan Medical Complex Hospital, Quetta Institute of Medical Sciences (QIMS), and Aria Institute of Medical Sciences.

Neurology residency programs in Islamabad are primarily offered by major hospitals and medical institutions like Shifa International Hospital, Pakistan Institute of Medical Sciences (PIMS), and Federal Government Poly Clinic (FGPC).

Neurology residency programs in Lahore are offered by several major hospitals and medical institutes, Lahore General Hospital (LGH) / Punjab Institute of Neurosciences (PINS), Services Institute of Medical Sciences (SIMS) / Services Hospital Lahore (SHL), Sharif Post Graduate Medical Institute (SPGMI) / Sharif Medical City Hospital, National Hospital & Medical Center, Fatima Jinnah Medical University (FJMU), and

Shalamar Medical and Dental College / Shalamar Hospital.

FCPS adult Neurology is a five-year training program with two years of initial medicine training followed by intermediate module exam, then three years of Neurology training. The program kicks off through an induction exam once an individual has completed two years of training in the field of Medicine in a CPSP recognized institute. The individual gets training under esteemed professors and reputable faculty at both personal and professional levels.

First year of training program mainly focuses on history taking and clinical examination teaching "the art of neurology" and provides learning and educates trainees about common neurological disorders, weekly problem based learning scenarios and regular journal clubs being looked after by honorable supervisors are organized to enhance the learning skills. Challenging cases are being discussed in regular neurology update meetings conducted among different hospitals with active participation of residents and respectable faculty members where advances in diagnosis and latest treatment modalities are analyzed.

By the end of first year of training program, the trainee is bound to have submitted two article topics for publication in PMDC and CPSP recognized journals. During second year of training program the individual is rotated under various subspecialties including neurophysiology, neuroradiology, ophthalmology, neurosurgery, and neuropsychiatry.

During final year of residency program the individual should be skilled enough to identify and efficiently deal with neurological emergencies and outpatient cases. The trainee should have submitted research articles for publication purpose. The individual is also encouraged to attend various workshops for future fellowship programs to help him further nourish in the field of neurology.

Currently, AKUH is conducting various fellowship programs for aspirants in the field of neurology including one year stroke fellowship program, and fellowship in clinical neurophysiology. Shifa International Hospital in Islamabad offers a two-year fellowship program in Vascular Neurology/Stroke. It is one of the leading institutions in Pakistan for this subspecialty training. In 2021, the Pakistan Stroke Society and Neuroradiology Society of Pakistan launched a neurointervention fellowship program at LGH.

Working in the field of Neurology for more than 20 years

and bearing in mind the burden of neurological disorders and the paucity of training slots the aim is to flourish the residency program, to increase the number of institutes offering residency training, to develop various specialty clinics and different fellowship programs in our country to provide focused and in-depth training in subspecialty which would be

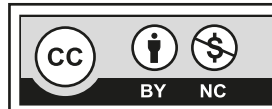
possible with the assistance and cooperation of my fellow colleagues. The objective is to initiate residency programs and establish satellite centers in small towns of the country where a large proportion of diseases remain undiagnosed because of lack of awareness and decreased accessibility of these individuals to neurologists, and to improve their quality of life.

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