The many reasons to become a Paediatric Neurologist

At all times the medical profession has been a great challenge, based on knowledge of a rapidly evolving nature science, social embedding and personal communicative skills. Within the field of medicine, Pediatrics is a discipline that is especially rewarding – at the socioeconomic level with respect to gain in health per patient years, at the personal level with respect to the very special relationship that is needed to diagnose and treat this patient group. Over the past five decades Pediatrics has faced a process of further sub-specialisation with Paediatric Neurology being one among many others. This sub-specialisation within Pediatrics has become necessary due to the progress in the various fields of childhood diseases. In most European countries Paediatric Neurology is a further sub-specialisation of Pediatrics, while in some countries, as the Netherlands, it is a subspeciality of Neurology. In every case, this sub-specialisation has enabled facilities with an age appropriate setting, starting from a child-friendly environment, nurses and other personnel trained to interact with children, paediatric EEG labs and routine access to MRI under sedation. To staff these facilities with the respective expertise, countries had to develop national fellowship training programs in Paediatric Neurology. Since 2010 we appreciate that under the leadership of the EPNS a European curriculum for a three year fellowship program in Paediatric Neurology is in place. It is now of utmost importance, that in each country the University hospitals and larger paediatric centers have dedicated appointments for fellowship programs for Paediatric Neurology to guarantee the education of next generations of Paediatric Neurologists. Not only is this needed to cover the patient care in our Paediatric Neurology outpatient clinics but also for the wards and disciplines with regular enrolment of Paediatric Neurology consultants, be it on the intensive care units, neonatology, neurooncology, cardiology or general pediatrics. The EPNS, on request, provides assessments of running fellowship programs within single European countries with respect to existing standards and expected future needs. Already more than 10 European countries were visited in the last years and the detailed analysis had a major impact on local regulations and training programs in many cases. To my knowledge there are no hard calculations on the regional or national demand for Paediatric Neurologists based on population data. Within Pediatrics the need for Paediatric Neurologists is likely to increase despite stagnation or falls in birth rates. First because modern medicine enables higher survival rates for many diseases but sometimes at a cost of increased morbidity, often involving the CNS. Second for the recognition of novel and sometimes treatable neurologic diseases and third because neurologic diseases are most often in need of life-long medical care.

Now why should young doctors decide to become a Paediatric Neurologist?

A survey within the EPNS asks every new member for their reasons to join our society — and mentorship is by far on top of the list. This does of course not necessarily reflect their previous decision to enter the fellowship programme for Paediatric Neurology, but in general illustrates the role of senior consultants in attracting and guiding young physicians and scientists. A recent remarkable article has named neurologists as the last bedside physician-scientists.1 Thus training on how to take a good history and the clinical skills for a thorough neurologic exam are in the center of every fellowship programme. Localisation of the neurologic impairment is a prerequisite for all further investigations, if needed at all. Beyond the clinical neurologic assessments many different rapidly progressing techniques are applied in the work-up of our patients, thus working in Paediatric Neurology means also to be part of an interdisciplinary network with close collaboration to neuroradiologists, electrophysiologists and clinical geneticists.

One other reason to enter this field is for its growing diversity. While in previous decades epilepsy, cerebral palsy and unclear developmental delay have been the major domains of Paediatric Neurology, recent decades have delineated a growing number of neuromuscular disorders, autoimmune disease, inborn errors of metabolism or neurogenetic disorders affecting the CNS. This broadens the list of our differential diagnoses and investigations and keeping pace is a challenge for all of us. Many of these novel entities fall into the category of orphan (incidence of <1:2000) or ultra-orphan diseases (<1:50,000). This has lead to further subspecialisa-
tion of Paediatric Neurology within the larger centers and the need for international networking on the very rare entities.

Along the growing diversity new treatment options have emerged. Autoimmune disorders involving the CNS warrant knowledge in the use of immuno-suppressants. Many inborn errors of metabolism are amenable to treatment but need to be recognized early to prevent irreversible brain damage. Exon skipping and read through Morfolinos have been shown to improve the clinical course of selected dystrophinopathies and, beside bone marrow transplantation, are among the first gene therapies in neuromuscular disorders to enter clinical routine.

Young fellows motivated for research in Paediatric Neurology have a high chance of becoming experts in one of these new areas, where many open questions are awaiting. The technique of next generation whole exome sequencing is leading into a new era and will unravel numerous known or novel gene defects underlying neurologic disorders. Beyond recognition of the underlying gene defect scientists will be challenged in understanding the underlying pathomechanisms, a prerequisite for the development of new treatment approaches. In addition next generation genotyping will need next generation phenotyping in order to describe the clinical spectrum of what we so far may have only recognized from one end of the clinical spectrum. Thus clinical skills will always remain a mainstay of Paediatric Neurology.

Mentors in Paediatric Neurology can attract young fellows and scientists by outlining the fascination of our rewarding work with patients and their families, with whom we often have longstanding relations. In every single case our work can contribute to improved quality of life for the patient and his family, be it by our clinical care or progress in the research on childhood diseases affecting the neurological system.

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REFERENCES