The role of EEG in the Diagnosis and Management of Epilepsy
in Neonates & Children

Course content

The course will cover the basic elements of the practice of EEG in its application to the diagnostic work up and the management of children with suspected or already established epilepsy. It will be practice-oriented and aimed at the general neurologist/pediatric neurologist /pediatrician dealing with - but not exclusively involved in - epilepsy care. Subject material will emphasize the basic the role of the (standard) EEG in the diagnosis and management of epilepsy, common misconceptions (positive and negative) and potential pitfalls. Attention will be given to practical aspects, including the set-up of an EEG lab, minimal standards, electrodes, montages, provocation methods and the optimalisation of EEG requests and reports, specifically in the context of epilepsy.

The first part will cover the normal EEG patterns from premature to adolescent (wakeness and sleep). Clinical aspects will include definitions of epileptiform EEG patterns according to age, examples of various types of epileptiform activity, sensitivity, specificity and predictive value of specific EA patterns for diagnosis of epilepsy or specific epilepsy syndromes. Diagnostic significance of spontaneous (or induced) sleep will be dealt with. The course will address the different kinds of EEG studies, extending from standard awake recordings to extensive long term EEG and video monitoring studies, with their specific requirements and indications but, since this is a basic course, intended to be relevant for day to day practice in average clinical circumstances, the emphasis will be on standard EEG, including sleep and the regular provocation methods in children. EEG in epileptic syndromes in neonates, infants and children will be described from typical to atypical cases both interictal and ictal, from one to several types of seizures in a given syndrome.

Since this pediatric course will not cover basic knowledge on EEG in adults, successful participation in the VIREPA basic course on the role of "EEG in the diagnosis and management of epilepsy" is typically a prerequisite prior to application to this specialized course (see paragraph below on Target group & entry criteria).

Course units

Introduction to the VIREPA platform; Technical issues in this age group; Normal EEG patterns in premature and neonates; Normal EEG patterns in infants and children; EEG in neonatal pathology; EEG in neonatal and infantile epilepsies; EEG in epilepsies in early childhood; EEG in epilepsies in late childhood; Non epileptic events in neonates and children; EEG basics in presurgical evaluation of pediatric epilepsies.

Learning objectives

Successful completion of the course will enable the participants to improve the quality of the diagnostic approach in neonates and children with epilepsy or other suspected paroxysmal disorders in the EEG lab of their clinics. It will help them to decide on the specific type of study, indicated for specific clinical problems. It will improve their competence and confidence in the recognition and differentiation of epileptic and other phenomena in the paediatric awake and

sleep EEG and their understanding of the clinical significance of these phenomena for the diagnosis and differential diagnosis of epilepsy and epilepsy syndromes.

Course format
The course itself is divided into 10 units, beginning with a one week introduction to the VIREPA e-learning platform, followed by 9 learning units of three weeks each. Additional educational material (textbooks and references) required for this course is available for downloading from the course's server repositories. To earn credits in each learning unit, tasks will be successfully completed within an active online communication process among all participants, guided by the experts in the discussion fora on the e-learning platform. These tasks help to deepen the theoretically gained knowledge from the learning material and enable the participant to transfer this knowledge to his/her daily clinical practice. The participants are expected to spend about 8 hours per unit (~2.5-3 hours/week) per unit on individual study of the learning material, for reading/submitting contributions to the course's virtual discussion forum and for the completion of the learning unit tasks, which includes the contribution of one's own case histories and EEG samples.

All tutors are currently practicing in their respective speciality field, moderating the distance courses in addition to their regular duties. This gives participants the unique opportunity to draw upon their expertise and practical experience even beyond the statutory requirements of the course.

Target group & entry criteria
The course is intended for pediatric neurologists and pediatricians, dealing with neonates and children with epilepsy, including the EEG studies of these patients.
- A minimum of 4 months of practical experience with clinical EEG is required as well as
- Confirmation of the neurology department of 3 years of neurological or comparable training (neuropediatrics, clinical neurophysiology, psychiatry or neurosurgery, or combinations of these)
- Since this pediatric course will not deal with basic technology, it is typically available only for students who have successfully participated in the VIREPA EEG adult basic course. Exceptions from this rule will only be made for applicants who are already competent in adult EEG *(e.g. who were successful in the ASEPA EEG examination or who have been a fellow in a reputable adult EEG laboratory for a period of time)*, and who specifically want to learn pediatric and neonatal EEG. Relevant certifications must be added to the application.
- CV - Please submit in **English only.**
- List of publications (if applicable and in **English only**)

Note that the contribution of one's own case histories and neonatal EEG samples will be required as part of course tasks.

Course fee: $1250. A restricted number of bursaries will be available. For participants living in countries with "low" and "lower middle" income, self payment for approved bursaries will be $300. See categories according to the statistics of the World Bank.

Important for bursary applicants:

1 a) Submission of a **letter of recommendation** from the bursary applicant's **current workplace or from the leadership of the local ILAE Chapter or Regional Commission** stating the expected

benefit to the epilepsy care and development in the bursary applicant's community **specific to the VIREPA course** for which application is being made.

1 b) In case such evidence cannot be submitted, a **personal letter of motivation** is required outlining the benefit the bursary candidate expects from his/her daily practice and professional career **specific to the VIREPA course** for which application is being made.

Please note that this **requirement is mandatory** and is an important part of the decision-making process for the granting of any bursary.

It is also wise to note that dropping out of a course or having limited participation in one, may impact future decisions about bursary eligibility.

Number of participants: up to 30

Course Director
Dr. Monika Eisermann

For questions, please contact ILAE VIREPA staff at **courses@ilae.org**.