

Course Announcement

Neuroimaging

1st edition – 2021-2022

Course content

The course will cover the methodological basics of neuroimaging techniques and their application to the diagnostic work up and management of people with new onset or chronic epilepsy, adults and children. The course material will focus on the basic role of different imaging techniques for the diagnosis and management of epilepsy: in particular the role of MRI in temporal and in extratemporal lobe epilepsy; SPECT, PET and PET-CT in focal epilepsy with negative MRI; functional MRI in presurgical work up of pharmacoresistant focal epilepsies.

Special attention will be given to practical aspects, including minimal standards for techniques, optimisation of neuroimaging requests and reports, common misconceptions (positive and negative) and potential pitfalls, specifically in the context of epilepsy, adults and children.

The course will include definitions and examples of the cerebral lesions involved in epilepsy and their functional impact, together with neuroanatomy tutorials to help with accurately localizing lesions in the brain. The course will discuss the sensitivity, specificity and prognostic value of imaging features, benign variants and artefacts, and the possible diagnostic significance of non-epileptogenic lesions as well as maturational aspects.

Clinical cases will be presented to illustrate the role of each imaging modality for diagnosis, prognosis and management of epilepsy in adults and children, and to increase interactions between participants. Imaging material will be submitted exclusively by the teachers.

The course will address all aspects of neuroimaging techniques, extending from standard CT and MRI to presurgical work up including SPECT, PET, functional MRI and multimodality imaging, with their specific indications and requirements. Since this is a first basic course, intended to be relevant for day-to-day practice in average clinical circumstances, the emphasis will be on standard MRI and functional neuroimaging techniques most commonly used in pharmacoresistant epilepsies.

Course units

- Unit 1: Introduction
- Unit 2: Temporal lobe epilepsy
- Unit 3: Extratemporal lobe epilepsy
- Unit 4: Malformations of cortical development
- Unit 5: Tumors
- Unit 6: Introduction to advanced methods

Learning objectives

Successful completion of the course will enable participants to improve the quality of the diagnostic approach in adults and children with new onset as well as chronic epilepsies. It will

inform decision-making on the appropriate imaging study indicated for a specific clinical problem. It will improve the competence and confidence in the recognition, localization, and differentiation of epileptogenic lesions and functional impact of epilepsy as well as the understanding of the clinical significance of these two factors for diagnosis and management of epilepsy in adults and children.

Course format

The course will begin with a 1 week introduction to the VIREPA e-learning platform, followed by 6 learning units of 2-3 weeks each. There will be a quiz at the end of each unit as well as a final exam at the end of the course. The grading breakdown for the course is as follows:

Unit quiz (6 units evenly weighted)	75%
Final quiz	25%
Total	100%

The participants are expected to spend about 8 hours per unit (~2.5-3 hours/week) for individual study of the learning material, for reading/writing contributions in the forum.

All tutors are currently practicing in their respective specialty 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 mere requirements of the course.

Target group & entry criteria

The course will be pragmatic and aimed at the general neurologist/pediatric neurologist/pediatrician/radiologist involved in daily epilepsy practice.

- 3 years of neurological or comparable training (neuropsychiatry, clinical neurophysiology, psychiatry or neurosurgery, or combinations of these)
- Basic practical knowledge of MRI and CT and a minimum of daily epilepsy practice
- Successful completion of the ILAE Academy self-paced Epilepsy Imaging course (<https://ilae-academy.remote-learner.net/>) or equivalent activity which addresses learning objectives similar to those listed below from the **ILAE curriculum**,
 - o Describe the major etiologies for epilepsy (i.e. structural, genetic, infectious, metabolic, immune, and neurodegenerative) (LO 1.1.1, Level 1)
 - o Describe the common structural etiologies (e.g. hippocampal sclerosis, tumors, malformations, vascular lesions, traumatic brain injury, etc.) (LO 1.1.2, Level 2)
 - o Recognize the spectrum of MRI sequences optimized for epilepsy (LO 1.5.1, Level 2)
 - o Decide on whom to do structural neuroimaging (LO 1.5.2, Level 1)
 - o Decide when to conduct neuroimaging and repeat as needed (LO 1.5.3, Level 2)

Course fee

\$950USD. 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 \$240USD.

(See categories according to the statistics of the World Bank:

https://www.ilae.org/files/dmfile/World-Bank-list-of-economies-2020_09-1.pdf)

Important for bursary applicants

1. 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.
2. 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 20

Course Director

Anna Elisabetta Vaudano

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