San Servolo Summer School
Advanced Epilepsy Summer Courses
San Servolo island, Venice (Italy), July/August

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Introduction to the Courses

The idea of an Epilepsy Summer Course was conceived in 2001 by a founding committee composed by Giuliano Avanzini, Marco de Curtis, Francesco Paladin, Yehezkel Ben Ari, Pete Engel, Uwe Heinemann, Istvan Mody, Nico Moshe, Tim Pedley, and Peter Wolf, under the patronage of the International School of Neurological Sciences in Venice (ISNV) affiliated to the Venice International University (VIU). The training Courses primarily aimed at young researchers and clinicians with an established interest in epileptology. The first Course on *Bridging basic with clinical epileptology* was held in the summer 2002 at the ISNV didactic facilities located on the San Servolo island, a location ideally suited for residential courses. The students had free access to didactic material under the supervision of the tutors. The strong commitment of the outstanding faculty and the motivation of the trainees contributed to the great success of the Course, thus prompting the ISNV to recognize the Epilepsy Summer Course as an important yearly educational event. The success of the research project elaboration by the students encouraged us to make this the core of the Course program that followed since 2002. The Epilepsy Summer School has been given a permanent organization under the supervision of a Scientific Committee composed by Giuliano Avanzini (ISNV President), Francesco Paladin (ISNV Director), Marco de Curtis (Epilepsy Summer School Director), and two Course Directors. In order to create a permanent link with the ILAE activities, it was decided that one of the Directors of each Course would be the Chair of the ILAE Commission relevant to the Course focus.

The 16 Courses held since 2002 are:

1. Bridging basic with clinical epileptology. 21/7- 4/8 2002; Directors: G. Avanzini and A. Mrabet
2. From basic knowledge to rational prescribing in epilepsy. 10-19/7 2003; Directors: E. Perucca and T. Tomson
3. Epilepsy in children: neurobiology, clinic, therapeutics. 11-22/7 2004; Directors R. Guerrini and S Moshé
4. Bridging basic with clinical epileptology-2. 18-27/7 2005; Directors: M. de Curtis and E. A. Cavalheiro
5. Surgically remediable epilepsies. 27/7-8/8 2006; Directors: Gregor Wieser, Giorgio Lo Russo
6. Clinical therapeutic approaches to childhood epilepsy. 23/7-3/8 2007; Directors H. Cross, B.Dalla Bernardina
7. Bridging basic with clinical epileptology-3. 27/7-8/8 2008; Directors: Uwe Heinemann, Marco de Curtis
8. From Basic Knowledge to rational prescribing in epilepsy-2. 19-30/7 2010; Directors M. Baulac, M. Schachter
9. Bridging Basic with Clinical Epileptology-4. 17-29/7 2011; Directors: M. de Curtis, A. Nehlig, J. Noebels
10. Management of seizures and epilepsies in neonate and infants. 14-26/7 2012; Directors F. Vigevano, P. Plouin
11. Brain exploration and epilepsy surgery. 14-26/7 2013; Directors: R. Spreafico, T. Tanaka
12. Bridging Basic with Clinical Epileptology-5. 20/7 -1/8, 2014; Directors M. de Curtis, J. Engel
13. Seizures and Epilepsies in Childhood: co-morbidities, advocacy, guidelines. 19-31/7 2015; Directors J. Wilmhurst, S. Vecchi
14. Brain exploration and epilepsy surgery (2). 10-23/7 2016; Directors: L. Tassi & I. Bluemcke
15. Bridging Basic and Clinical Epileptology (6). July 17-28, 2017. Directors: G. Avanzini and M. de Curtis.

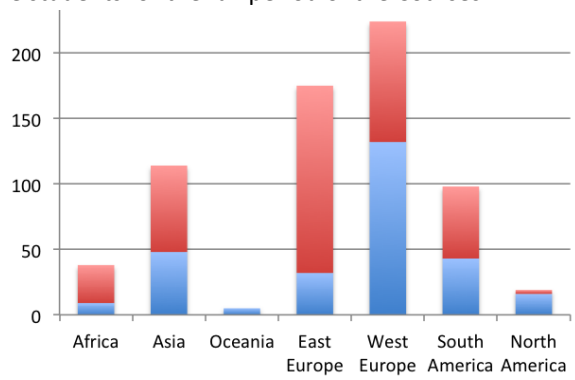
16. Epilepsies in childhood and adolescence: diagnosis, management, evolution and transition to adult medical care. 15-27/7 2018. Directors Rima Nabbout (F) and Tiziana Granata (I).
17. Epilepsy Surgery at Pediatric Age. Summer 2019. Directors Helen Cross (UK) and Imad Najm (US).

On June 21-24 2009, a **San Servolo Course Alumni Conference** was held in Pécs (Hungary) in conjunction with the celebration of the centennial anniversary of the ILAE foundation (Proceedings of **San Servolo Alumni** Conference, a pre-congress meeting of the 28th International Epilepsy Congress. Pecs, Hungary. June 21-24, 2009. Epil. Res. 2010 89:1-161. PMID: 20560186.

Epilepsy surgery stands as a primary option in the treatment of epilepsy. Several Epilepsy Centers across the world have started Epilepsy Surgery Programs in the last 10 years, thus generating an increasing need to train young clinicians (neurophysiologists, neurologists and neurosurgeons) and research/clinical scientists to plan epilepsy surgery, to manage an epilepsy surgery program and to develop research activities associated to epilepsy surgery. The San Servolo Epilepsy School was the first to organize in 2006 a full didactic summer Couse focussed on pre-surgical workout in epilepsy patients and on epilepsy research strategies complementary to epilepsy surgery.

The Courses are targeted to neurologists, neuropediatricians, neurophysiologists, neuroradiologists, neurosurgeons and to experimental and clinical neuroscientists interested in the pathophysiology, diagnosis and management of pharmacoresistant epilepsies. Students (50-60) are selected by the Course Directors to ensure a balance between genders, clinical/scientific background (clinicians with different expertise and basic scientists) and geographical origin. To this end, it is crucial to obtain the financial support that consents to provide the largest possible number of fellowships (20-25) for applicants from Countries with limited resources.

Overall, 756 students from 104 Nations attended the 16 editions of the Course since 2002. The success of the San Servolo Epilepsy Summer School is demonstrated by the growing number of applications, that are currently three times greater than the number of accepted students. The success of the Courses is due to the generous commitment of the directors, lecturers and tutors who share their outstanding experience and live in close communication with the students for the full period of the Courses.



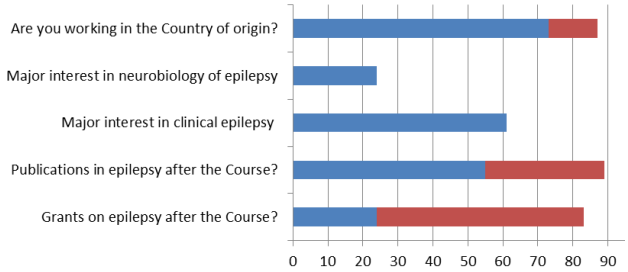
Geographical origin of San Servolo students from 2002 to 2015. Red columns: supported by bursary. Right: geographical distribution of fellowships. The size of the circle is proportional to the number of bursaries per Country

During the 13 Editions of the Course, we supported **456 fellowships** to trainees from diverse parts of the world (29 from Africa, 66 from Asia&Oceania, 143 from Eastern Europe, 92 from Western Europe, 55 from Latin America, 3 from North America). Part of these students were supported by funds of ILAE Topic-oriented Commissions (130), European Affairs Commission (68) and African Affair Commission (4).

The uniqueness of the training offered during the San Servolo Courses relies on three main features: i) San Servolo School organization selects students with diverse backgrounds, from neurosurgery to basic science; ii) the School has granted over 13 years of activity fellowship to grant the participation of scientists and clinicians from less privileged Countries in Europe, Africa, Asia, Latin America; iii) the Course is based on the development of a research project under the tutorship of internationally renowned senior scientists/clinicians. This format has a unique didactic power that is still unmet in the context of international educational events in the field of epilepsy.

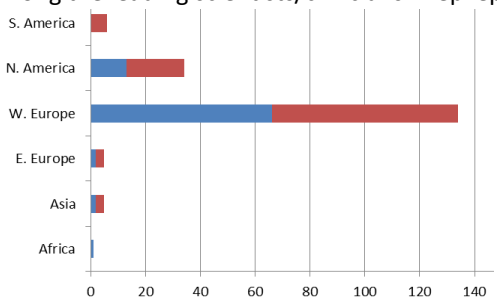
For these reasons the San Servolo Advanced Courses maintain a distinctive role in the educational needs of the world epilepsy community. This is confirmed by the high number of Course students that progressed and developed an independent carrier in epilepsy, as emerged from a preliminary survey promoted by the San Servolo School in 2015. This clearly indicates that excellent scientists select the San Servolo Course as a primary educational event, and also suggest that the Course contributed to reinforce the motivation of attendants to pursue a career in clinical and experimental epilepsy.

Based on the feedbacks of previous courses we expect that the participation in the San Servolo Courses will significantly improve the professional and scientific profile of the students and that this will result in a promotion of the epileptologic activities in their environment. In addition the experience of preparing a research project in collaboration with other students under the supervision of tutors selected among the Course faculty can result in International research collaborations; this was indeed a verified outcome of the previous Courses.



Preliminary results of a questionnaire sent in 2015 to 400 San Servolo students (87 replied). Blue=yes; red=no.

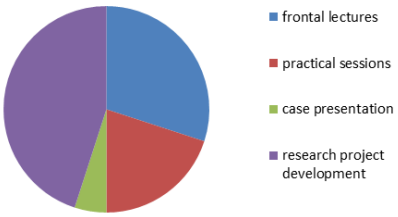
San Servolo Epilepsy Courses Faculty members (194 in 16 years) are among the leading scientists/clinicians in epilepsy arena. Most of the Faculty members are currently involved in the activities in diverse Topic-oriented and Regional Commissions of ILAE or were members of ILAE Commissions in the last 10 years. The last five ILAE Presidents were tutors at San Servolo Courses.



Continent distribution of San Servolo faculty members from 2002 to 2015. Red columns highlight the number of members involved with ILAE Commissions/TFs

Teaching methods

The 12-days Course is utilizing different didactic formats that integrate in a comprehensive educational program (see Course schedule below). Teaching methods are distributed as follows: frontal lectures (30%), practical sessions (20%), case presentations (5%) and research project development (45%). Frontal didactic update lectures are planned in the morning of days 1-7. Practical sessions with dedicated and interactive material are organized during the afternoons of days 2-5. One afternoon is reserved to the students presentation of clinical cases. From the first day, a research/clinical theme selected in advance by the Course Faculty will be assigned to teams of 6-8 students with different background, competence, geographical origin, gender. Each team is instructed by 2 faculty tutors to prepare a research project on the assigned topic. The project is presented to the Faculty and is discussed the last day of the Couse. A non-monetary award is given to the project that the Faculty evaluated as most innovative and original.



Course Venue

The San Servolo Venice International University (VIU) venue is an ideal place for a residential Course. The International School of Neurological Sciences in Venice (ISNV) is a VIU member that organizes the San Servolo Summer School on Epilepsy. The San Servolo island has all the facilities needed for the 100-person conference and the meeting rooms for practical session and team meetings with all necessary AV equipment. Lodging facilities for up to 200 attendants and a cafeteria are available.

Wireless internet service is available throughout the Conference Center and in the condominiums. Two secretarial personnel will be on-site to assist with the logistics of meals, rooms, transportation and AV services. As mentioned below, the San Servolo island environment results in the attendees spending time together

not only in the formal portions of the conference but also socializing together during the informal portions of the conference.

Course budget

The Course relies on external sources of funding, and could not be carried out without such support. In past editions we obtained support from different Topic-oriented and Regional Commissions of ILAE, from NATO, from the European Community (EPILEARN grant 2003-2008), from the American Epilepsy Society, from Citizens United for Research in Epilepsy (CURE), from private companies, from unrestricted funding from pharmaceutical industries and from students registration fees. Course funding provides support for travel and living costs for tutors, speakers, Convention Center costs and for full-board bursaries for 20-25 students from less advantaged Countries. The selection of bursary recipients will be made by the Course directors, based on the students CV. All contributions are acknowledged in the program announcement and reports, as well as during the opening of the meeting.

On the history of San Servolo and the International School of Neurological Sciences

San Servolo is an island in the Venetian Lagoon, to the southeast of San Giorgio Maggiore. Documents show that there was a Benedictine monastery on the island as early as the 8th century. The religious complex remained open until the 17th century. **I**n the early 1700's, San Servolo was designated as the site of the military hospital of the Venetian Republic to cure soldiers harmed during continuous conflicts with the Ottoman Empire. Soldiers and sailors who were the source of the Republic's strength in the battles for commercial and political sovereignty, were looked after by the Friars of the order of St. John of God. In 1725, a mentally deranged nobleman was admitted to this military hospital and thus began the function of San Servolo as an asylum for mad noblemen. While some of these patients suffered from serious psychiatric problems, others were confined there only because they were deemed socially undesirable.

By 1800, mental patients of every social class and strata were admitted to San Servolo, which then became the psychiatric hospital for the Veneto Region. Women were accepted from 1804-1834, after which they were treated in the hospital of S. Clemente, a nearby island.

In 1978, government-instituted reforms of psychiatric treatment resulted in the closure of the hospital. The next year, the Venice government established on the island the "Istituto per le Ricerche e gli Studi sull´Emarginazione Sociale e Culturale" (Institute for the Study of Social and Cultural Marginalization) to preserve the documents associated with the history of the psychiatric hospital.

Recently, San Servolo has started hosting an annual international artist residency and has become the site for numerous exhibitions, festivals and performances.

The **Venice International University** (VIU) currently operates at San Servolo premises. VIU is a center for research and education and a collaboration among ten universities from around the world, was formed on San Servolo in 1995. Venice International University is something unique in the academic world: a group of Universities from all over the world sharing a common campus on this beautiful island in the Venice lagoon. These Universities collegially devise study programs to prepare their students to face the global challenges of today: sustainable development; climate change; ageing; urban growth; global ethics; cultural heritage... These global issues require a new kind of academic preparation. Students who choose to spend a term studying at VIU are taught to move across disciplines and through cultures with a flexibility of approach, an open mind and creative thinking.

The **International School of Neurological Sciences in Venice** (ISNV) was founded in 1990, at the beginning of the "Brain Decade", and is one of the founding members of VIU. It is ISNV's aim to provide health professionals with the opportunity to improve their skills in the Neurological Sciences by organizing courses conducted by leading international experts in specific fields. In addition, ISNV is always ready to host meetings, workshops and round-tables. Since 2002, the ISNV has been organizing and hosting advanced international summer courses on various aspects of epilepsy, with the support of the International league Against Epilepsy.