



BESTA NEUROSIM CENTER COURSE

IST International Neurosurgery Simulation Course

at WFNS

March 22nd-23rd, 2019

The WFNS, in collaboration with the Besta NeuroSim Center, are proud to announce the upcoming event as the first edition of the International Neurosurgery Simulation Course held within the WFNS International Meeting.

The Besta NeuroSim Center is the first and largest European simulation and training center entirely dedicated to neurosurgery. Virtual reality simulation with haptic feedback is endowed in the top-notch simulators available at the center in order to allow residents to rehearse and operate virtual human brain in a 3D virtual reality setting. This is probably the future of neurosurgical training, because it may allow residents to improve their skills in a safe environment, without harming patients because of the operator's inexperience.

In this proposed course, trainees can simulate both interventions carried out under the microscope (e.g. removal of a brain tumor) and neurosurgical operations which do not require the use of a microscope (e.g. EVD placement)

TOTAL COURSE HOURS: 8 (4 per day)
TOTAL N° OF PARTICIPANTS: 36 (18 per day)

Moreover, the Simulation Centre at the congress venue will be open from 09.00 am until 12.00 pm and from 02.00 pm until 06.00 pm to showcase the simulators and allow all residents and attending neurosurgeons to briefly try our simulators.

THE SIMULATORS

NEUROVR

It allows any neurosurgeon (resident or attending) to simulate in a virtual reality and three-dimensional environment, many neurosurgical interventions carried out under the operative microscope, such as the removal of brain tumours, or endoscopic procedures within the cerebral ventricles or transnasosphenoidal. NeuroVR is designed for training neurosurgeons, using the same principle of pilot training in aircrafts. This is the most accurate and realistic neurosurgical simulator available today. The system provides an automatic registration of each candidate's performance in order to see if his/her technical skills improves and track the learning curve.

Saturday, March 23rd / Hall 7

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IMMERSIVE TOUCH

Immersive Touch can be used for planning interventions, so as to better define the times and access corridors to the areas to be treated, or more practical procedures on patients such as placing an external ventricular drain. The simulator provides a three-dimensional view of images completely in digital graphics and it is a “high fidelity” simulation system endowed with visual and tactile feedback.

USIM

It is an intraoperative Ultrasound Simulation app that can be downloaded on any smartphone that becomes a virtual probe to simulate and rehearse intraoperative ultrasound on a library of cases that were previously acquired at C. Besta Institute.

SURGICAL THEATER

CT and MRI scans of are used to reconstruct a patient-specific 3D model that helps neurosurgeons to pre-operatively evaluate and rehearse the operative case, decrypt the surgical anatomy and determine the best corridor to follow, practice different surgical procedures. It can be connected to the intraoperative navigation system in the OR and it allows case-specific rehearsal, performing some neurosurgical procedures (e.g. aneurysm clipping), along with post-operative debriefing.

SCHEDULE

DAY I

Welcoming Presentation.

Presentation and introduction to simulation in neurosurgery and its latest developments. Presenters: Prof DiMeco, Prof Meling, Prof Del Maestro, Prof Grotenhuis, and Prof Perin.

Four-hour course: **18** participants

After the course, the simulation centre is open to the public.

DAY 2

Four-hour course: **18** participants

After the course, the simulation centre is open to the public.



ACTIVITIES' SCHEDULE

The candidates will be asked to perform different tasks:

- Tumor (meningioma) debunking case at NeuroVR.

Different parameters will be assessed: percentage of tumor removed, percentage of brain parenchyma removed, strength applied to the tissue, volume of blood lost.

- External ventricular drain (EVD) at ImmersiveTouch

Different parameters will be assessed: number of attempts needed to reach the ventricles, accuracy in positioning the catheter.

- Visualization of an MCA left aneurysm with the aid of virtual reality glasses and clipping of that aneurysm at Surgical Theatre

- Identification of ten anatomical structures, displaying the brain in B-mode ultrasound at USim

The candidates will be evaluated in their ability to orientate using b-mode ultrasound, before and after the help of MRI images of the case

Venue: Hotel Crowne Plaza, Belgrade / Hall 7

This course has limited number of 20 participants per day based on the principle first come first served.

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